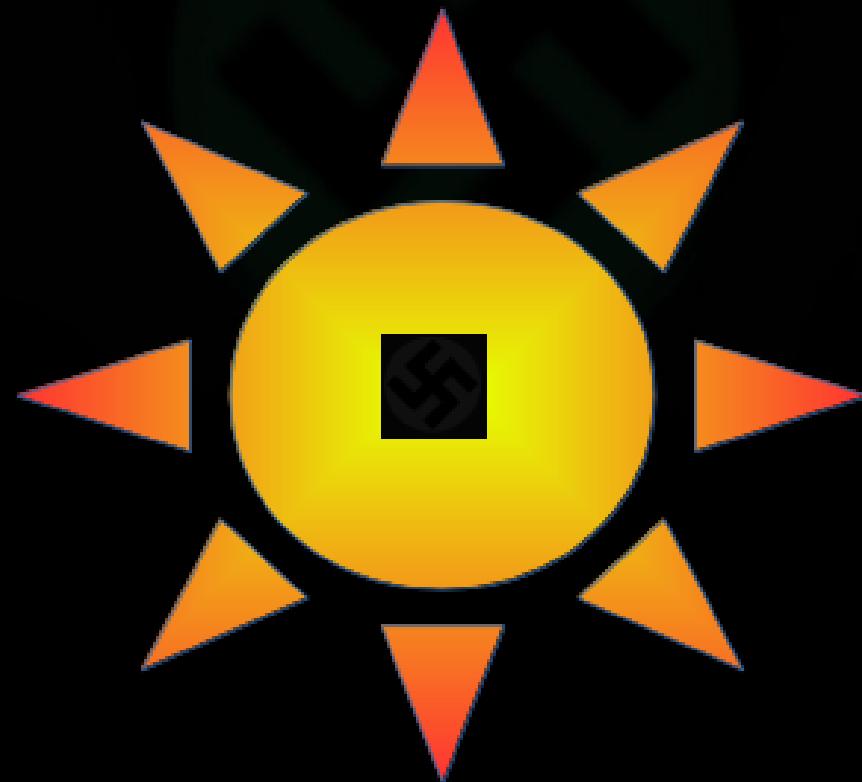


# ANAND'S ATLAS OF PATHOLOGY

WEB VERSION 1.0



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2. Messrs Canonical Inc – The Concept, Design and the resultant work was done on Trusty Tahr
3. To all my blood brothers Past, Present and Future of the 12<sup>th</sup> Battalion Assam Regiment (Wangdung) of the Indian Army
4. To my family, friends, teachers and well wishers for their blessings, constant encouragement and support
5. To all my students – Past, Present and Future
6. To Abhinandan for laying the ground work of this Atlas
7. Professor. Dr.P.M.Subramaniam without whose immense help this atlas would not have seen the light of the day

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SPECIMENS IN PATHOLOGY PRACTICAL  
CLASSES

ONLY THE MOST IMPORTANT POINTS ARE  
PROVIDED FOR EACH SLIDE / SPECIMEN

STANDARD TEXTBOOKS OF PATHOLOGY  
SHOULD BE REFERRED FOR ADDITIONAL  
POINTS

**THIS ATLAS WILL SERVE AS A  
RAPID REFERENCE GUIDE FOR  
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PRACTICAL CLASSES AND ALSO DURING EXAMS**

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# SECTION - 1

## HISTOPATHOLOGY SLIDES

# **LIST OF COLOUR PLATES**

**MALIGNANT MELANOMA**  
**SQUAMOUS CELL CARCINOMA**  
**BASAL CELL CARCINOMA**  
**PLEOMORPHIC ADENOMA**  
**CIRRHOSIS OF LIVER**  
**LOBAR PNEUMONIA**  
**SEMINOMA TESTIS**  
**OSTEOCLASTOMA**

# **LIST OF COLOUR PLATES**

**RENAL CELL CARCINOMA**

**CHRONIC PYELONEPHRITIS**

**VESICULAR MOLE**

**PAPILLARY CARCINOMA OF THYROID**

**ADENOCARCINOMA OF STOMACH**

**PROLIFERATIVE ENDOMETRIUM**

**SECRETORY ENDOMETRIUM**

**BENIGN PROSTATIC HYPERPLASIA**

# **LIST OF COLOUR PLATES**

**COLLOID GOITRE**

**LEIOMYOMA OF UTERUS**

**ACUTE APPENDICITIS**

**TUBERCULOUS LYMPHADENITIS**

**RHINOSPOROIDOSIS**

**MADURA MYCOSIS**

**ACTINOMYCOSIS**

**FIBROADENOMA OF BREAST (MIXED)**

# **MALIGNANT MELANOMA**

**USUALLY PRESENTS AS A  
ULCEROPIGMENTED LESION IN THE EXTREMITIES  
AROUND THE 5TH DECADE  
IN A VERY SHORT DURATION  
(LESS THAN A MONTH)**



PIGMENTATION

A blue arrow points to a cluster of brownish, granular cells within a tissue sample, indicating the area of focus for the label.

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# **MALIGNANT MELANOMA**

**COMMON NEOPLASM AFFECTING THE SKIN**

**OTHER SITES - ORAL AND ANOGENITAL MUCOSA, OESOPHAGUS, MENINGES AND EYE**

**AETIOPATHOLOGY - EXPOSURE TO SUNLIGHT AND PRESENCE OF PRE EXISTING DYSPLASTIC NEVUS**

**CHANGE IN COLOR AND SIZE OF A PIGMENTED LESION IS A VERY IMPORTANT CLINICAL SIGN**

# **MALIGNANT MELANOMA**

**ENLARGEMENT IN SIZE OF MOLE**

**DEVELOPMENT OF NEW PIGMENTED LESION IN ADULT LIFE**

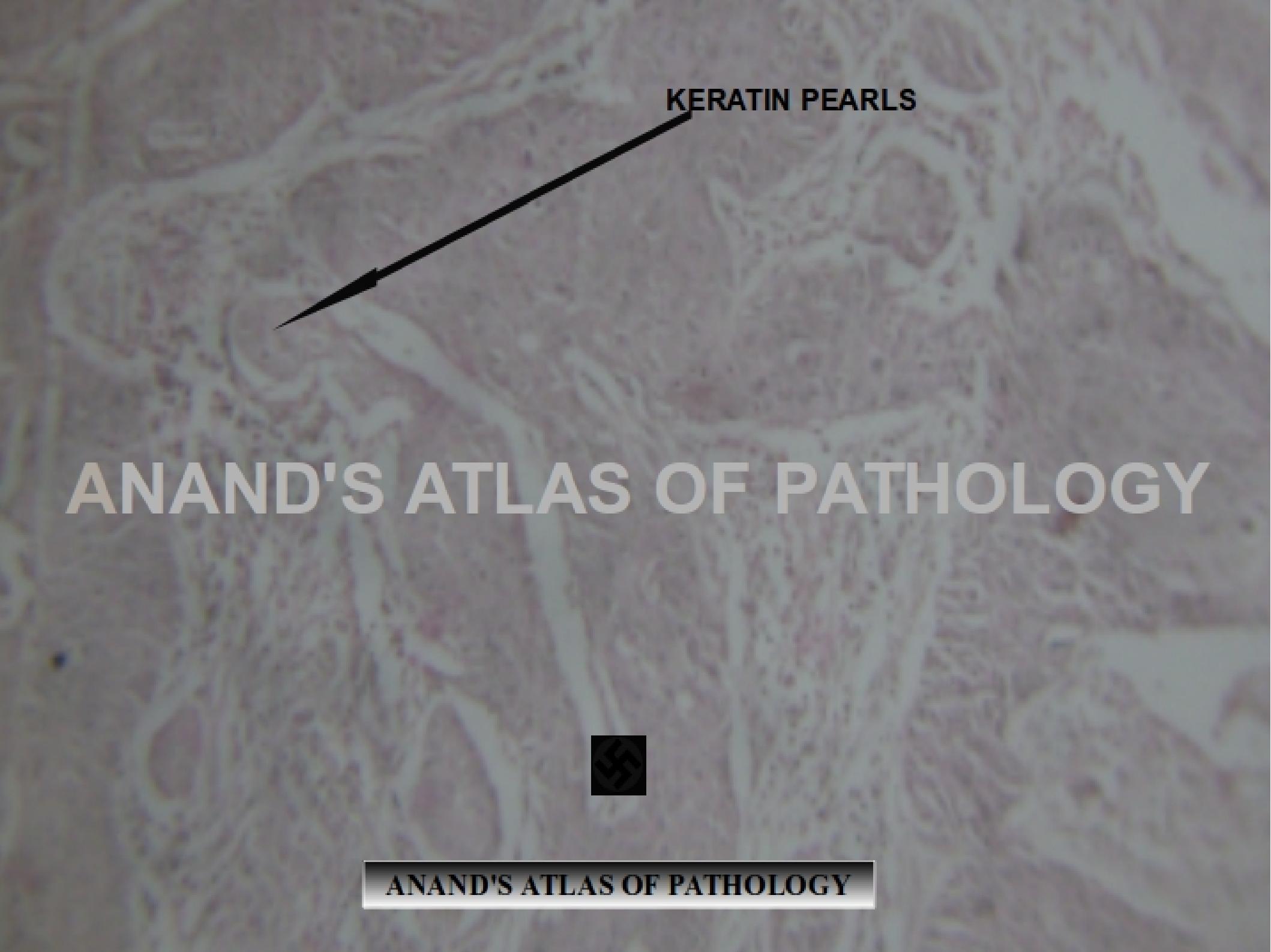
**MELANOMA INITIALLY GROWS HORIZONTALLY WITHIN EPIDERMAL AND SUPERFICIAL DERMAL LAYERS**

**LATER IT TENDS GROW VERTICALLY INVADING DEEP**

**METASTASIS TO OTHER SITES LIKE LYMPH NODES, LIVER, LUNGS AND BRAIN IS BY HAEMATOGENOUS SPREAD**

# **SQUAMOUS CELL CARCINOMA**

**ULCERO PROLIFERATIVE LESION  
USUALLY OCCURS IN THE EXTREMITIES  
CHARACTERIZED BY CAULIFLOWER  
LIKE GROWTH**



KERATIN PEARLS

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# **SQUAMOUS CELL CARCINOMA**

**SQUAMOUS CELL CARCINOMA DENOTES A CANCER IN WHICH THE TUMOUR CELLS RESEMBLE STRATIFIED SQUAMOUS EPITHELIUM**

**MOST COMMONEST TUMOUR ARISING ON SUN EXPOSED SITES IN OLDER PEOPLE**

**PREDISPOSING FACTORS - SUNLIGHT, IONISING RADIATION AND OLD BURN SCARS**

**OTHER SITES - CERVIX, OESOPHAGUS, ORAL CAVITY, PENIS, VAGINA AND URINARY BLADDER**

# **SQUAMOUS CELL CARCINOMA**

**PRESENCE OF HIGHLY ATYPICAL CELLS IN EPIDERMIS**

**USUALLY POLYGONAL SQUAMOUS CELLS ARRANGED IN ORDERLY LOBULES WITH LARGE ZONES OF KERATINISATION**

**METASTASIS OCCURS TO REGIONAL LYMPH NODES**

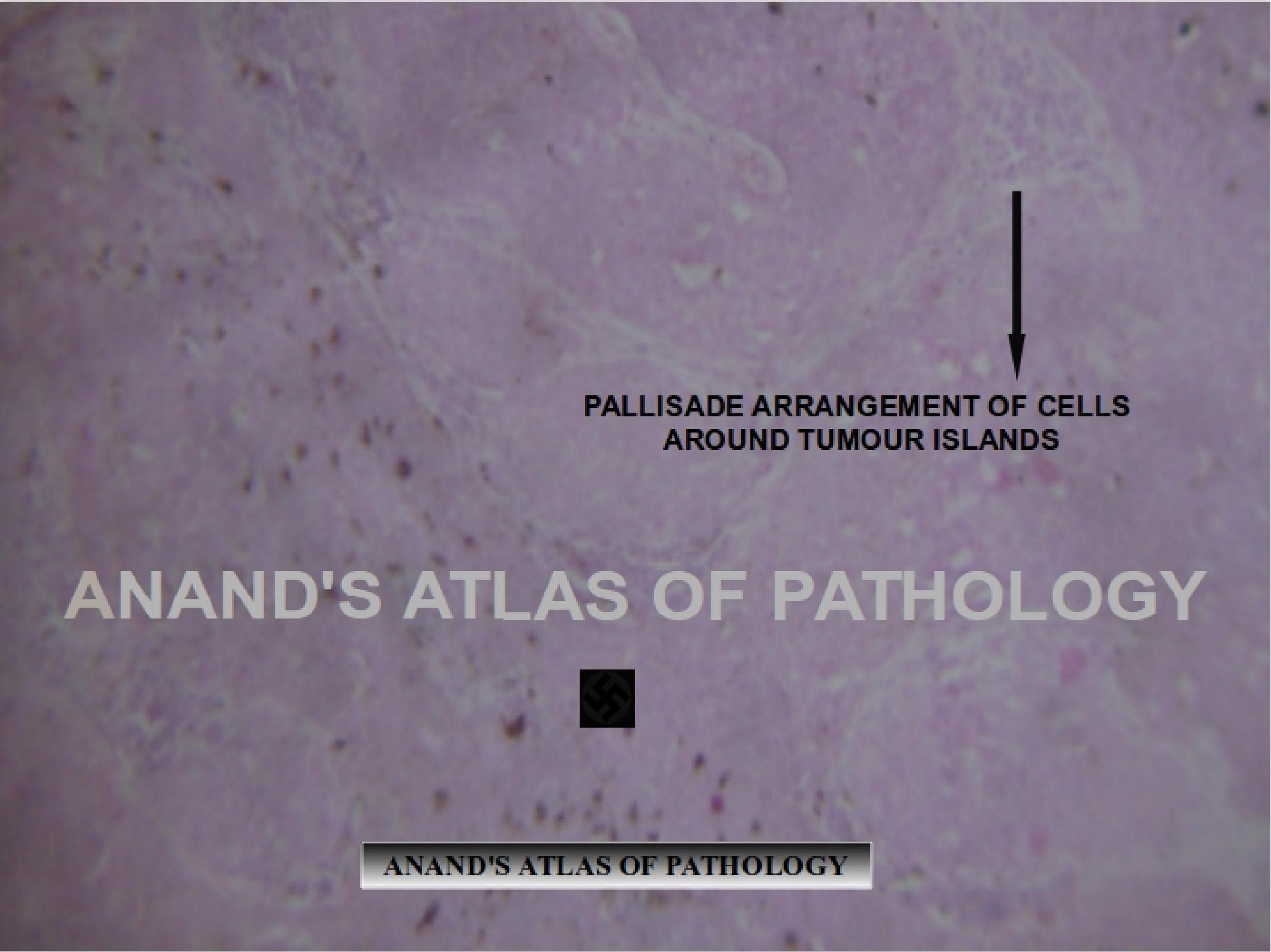
**INDIVIDUALS WITH IMMUNOSUPPRESSION ARE LIKELY TO DEVELOP SQUAMOUS CELL CARCINOMAS**

# **BASAL CELL CARCINOMA – RODENT ULCER**

**USUALLY CHARACTERISED BY AN ULCER EITHER IN THE  
FOREHEAD OR FACE**

**THE ULCER IS FIXED TO THE UNDERLYING TISSUE**

**THE EDGES OF THE ULCER LOOK LIKE  
AS IF THEY HAVE BEEN  
GNAWED BY A RAT  
HENCE THE NAME RODENT ULCER**



PALLISADE ARRANGEMENT OF CELLS  
AROUND TUMOUR ISLANDS

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**BASAL CELL CARCINOMA - RODENT ULCER**

**SLOW GROWING TUMOUR**

**OCCURS AT SITES CHRONICALLY EXPOSED  
TO SUNLIGHT**

**TUMOURS PRESENT AS PEARLY PAPULES  
WITH TELANGIECTASIA**

**ADVANCED LESIONS ULCERATE AND  
CAUSES EXTENSIVE LOCAL INVASION**

## **BASAL CELL CARCINOMA - RODENT ULCER**

**TUMOUR CELLS RESEMBLE THOSE IN  
NORMAL BASAL LAYER**

**GROWTH PATTERN CAN BE MULTIFOCAL OR  
NODULAR LESIONS**

**PALLISADING ARRANGEMENT OF CELLS  
AROUND TUMOUR CELL ISLANDS**

**SEPARATION ARTIFACTS ASSIST IN  
DIFFERENTIATING BASAL CELL CARCINOMA  
FROM OTHER TUMOURS**

# **PLEOMORPHIC ADENOMA**

**PLEOMORPHIC ADENOMA USUALLY  
OCCURS AS A PAINLESS  
GROWTH IN THE  
PAROTID REGION**

TUMOUR CELLS EMBEDDED IN  
LOOSE CONNECTIVE  
TISSUE STROMA



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# **PLEOMORPHIC ADENOMA**

**MIXED TUMOUR OF SALIVARY GLANDS**

**IT IS A BENIGN EPITHELIAL NEOPLASM PRODUCING GLAND PATTERNS**

**A SLOW GROWING, WELL DEMARCATED, ENCAPSULATED LESION**

**COMMONLY AFFECTS PAROTID GLAND**

**CHARACTERISED BY PAINLESS SWELLING AT THE ANGLE OF THE JAW**

# **PLEOMORPHIC ADENOMA**

**HISTOLOGICAL PICTURE - HETEROGENEOUS APPEARANCE**

**TUMOUR CELLS FORM DUCTS, ACINI, TUBULES AND STRANDS OF CELLS**

**EPITHELIAL CELLS ARE SMALL AND DARK RANGING FROM CUBOIDAL TO SPINDLE FORMS**

**EPITHELIAL ELEMENTS ARE INTERMINGLED IN LOOSE MYXOID CONNECTIVE TISSUE STROMA**

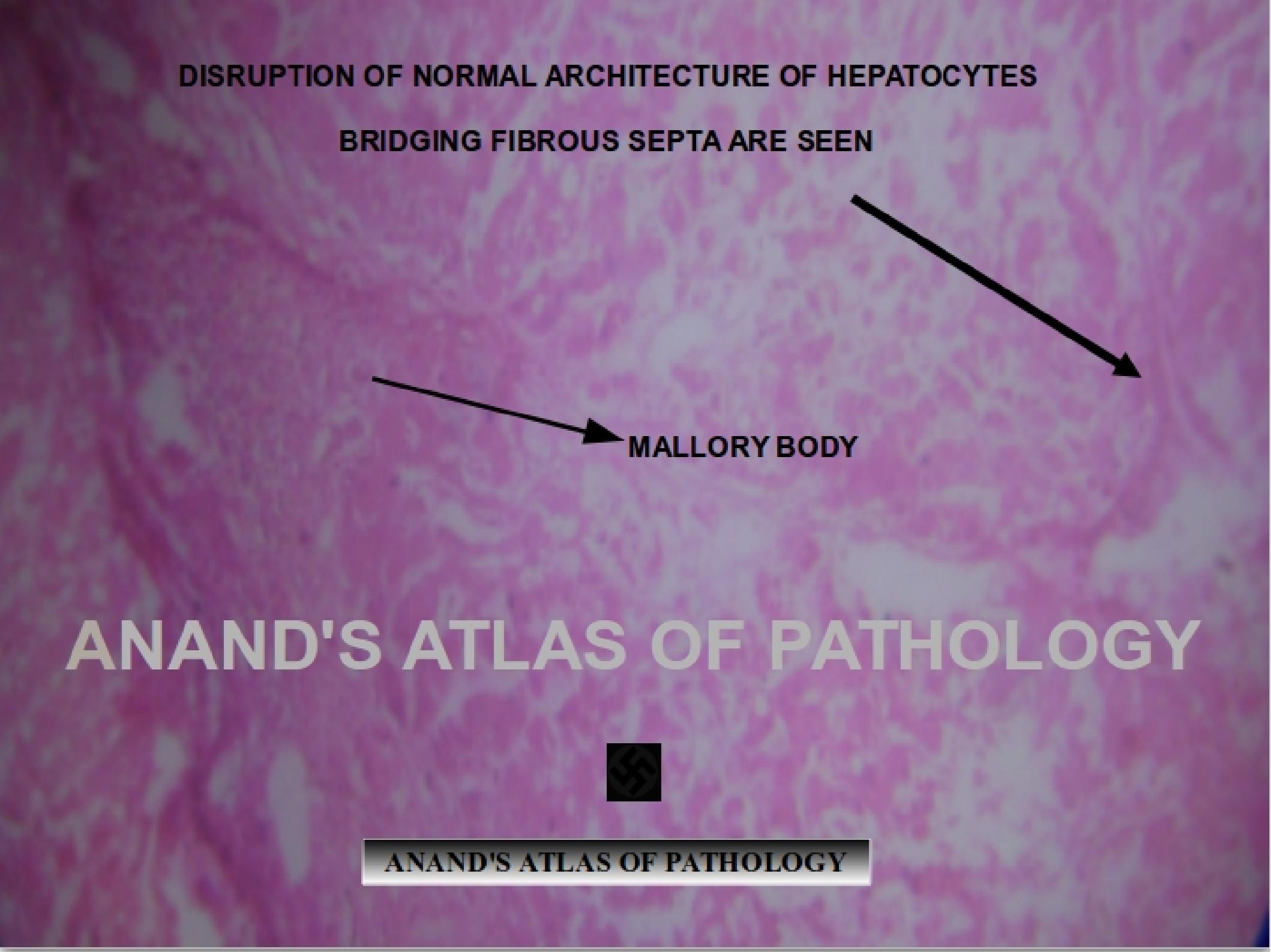
**SOMETIMES ISLANDS OF CHONDROID OR BONE ARE SEEN**

# **CIRRHOSIS OF LIVER**

**PATIENT USUALLY IS A CHRONIC ALCOHOLIC  
PRESENTING WITH HEMATEMESIS, MALENA  
AND ABDOMINAL DISTENSION**

**LIVER BIOPSY IS DONE**

DISRUPTION OF NORMAL ARCHITECTURE OF HEPATOCYTES  
BRIDGING FIBROUS SEPTA ARE SEEN



MALLORY BODY

This image is a high-magnification H&E-stained liver biopsy. It shows a distorted arrangement of hepatocytes. A prominent, dark, eosinophilic, and somewhat granular structure is labeled as a 'Mallory body'. A thick, dark, linear band of collagenous tissue, representing a 'bridging fibrous septum', spans across several hepatocyte cords, separating them into smaller, irregular clusters. The hepatocytes themselves appear somewhat vacuolated or enlarged.

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# **CIRRHOSIS OF LIVER**

**IT IS AN END STAGE OF CHRONIC LIVER DISEASE**

**CHRONIC ALCOHOLISM - FATTY LIVER**

**THERE IS DISRUPTION OF NORMAL ARCHITECTURE  
OF LIVER**

**BRIDGING FIBROUS SEPTA IN THE FORM OF  
DELICATE BANDS OR BROAD SCARS REPLACING  
MULTIPLE ADJACENT LOBULES ARE SEEN  
(FIBROSIS)**

**PARENCHYMAL NODULES ARE CREATED BY  
REGENERATION OF ENCIRCLED HEPATOCYTES  
VARYING IN SIZE ARE SEEN**

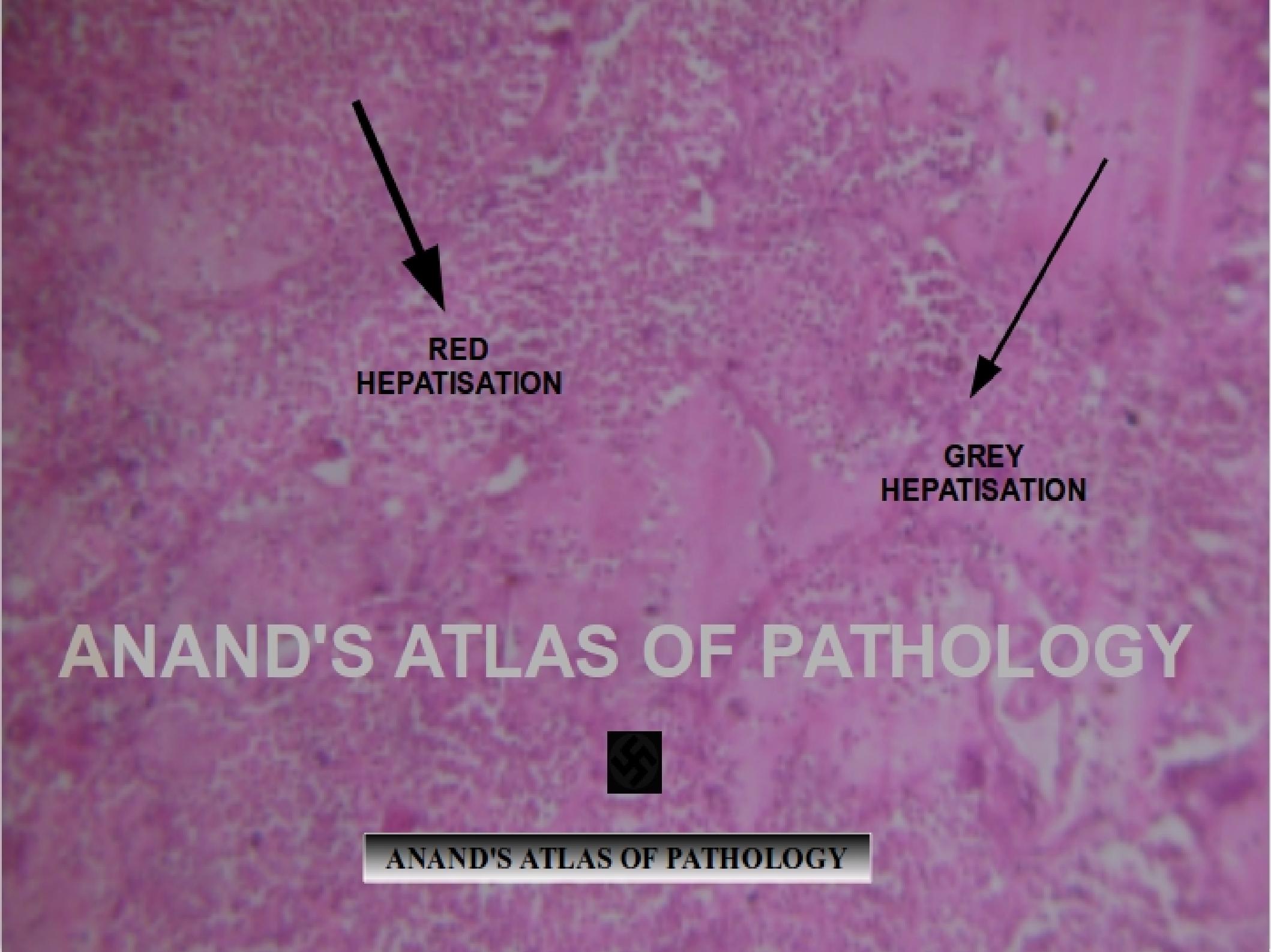
**MALLORY BODIES ARE SEEN**

# **LOBAR PNEUMONIA**

**PATIENT USUALLY PRESENTS WITH FEVER,  
MALAISE, COUGH WITH EXPECTORATION  
OF SPUTUM AND SEPTICEMIA IS A  
PRESENTING FEATURE**

**LUNG BIOPSY IS DONE**

**LOBECTOMY IS DONE IN EXTREME CASES**



RED  
HEPATISATION

GREY  
HEPATISATION

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# **LOBAR PNEUMONIA**

**IT IS A ACUTE BACTERIAL PNEUMONIA  
USUALLY CAUSED BY *STREPTOCOCCUS  
PNEUMONIAE***

**EVOLUTION OF DISEASE IS THROUGH FOUR  
STAGES**

**STAGE OF CONGESTION, RED HEPATISATION,  
GRAY HEPATISATION AND RESOLUTION**

# **LOBAR PNEUMONIA**

**IN STAGE OF RED HEPATISATION, ALVEOLAR SPACES ARE PACKED WITH NEUTROPHILS, RED CELLS AND FIBRIN**

**IN STAGE OF GRAY HEPATISATION, RED CELLS GET LYSED**

**IN STAGE OF RESOLUTION, EXUDATES WITHIN ALVEOLI ARE ENZYMATICALLY DIGESTED AND EITHER UNDERGO RESORPTION OR IS EXPECTORATED**

# **SEMINOMA TESTIS**

**MALE PATIENT USUALLY PRESENTS  
WITH A PAINLESS MASS IN  
THE SCROTUM**

**TESTICULAR BIOPSY IS DONE FOR  
CONFIRMATION OF DIAGNOSIS**

**ORCHIDECTOMY IS DONE**

LYMPHOCYTIC INFILTRATION IS SEEN



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# **SEMINOMA TESTIS**

**IT IS A GERM CELL TUMOUR**

**CRYPTORCHIDISM IS A COMMONLY ASSOCIATED CAUSE**

**IT IS COMPOSED OF LARGE CELLS WITH DISTINCT CELL BORDERS, CLEAR GLYCOGEN RICH CYTOPLASM**

**PRESENCE OF ROUND NUCLEI WITH CONSPICUOUS NUCLEOLI**

**CELLS ARE ARRANGED IN SMALL LOBULES WITH INTERVENING FIBROUS SEPTA**

**LYMPHOCYTIC INFILTRATION IS SEEN**

**GRANULOMATOUS INFLAMMATORY REACTION CAN BE PRESENT**

# **OSTEOCLASTOMA - GIANT CELL TUMOUR**

**PRESENTS AS A CYSTIC  
BONY LESION**

**USUALLY AROUND THE 2ND AND 3RD DECADE**

**LONG BONES ARE AFFECTED**

**LESIONS ARE PRESENT AROUND  
THE EPIPHYSIS**

OSTEOCLAST LIKE GIANT CELLS



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## **OSTEOCLASTOMA - GIANT CELL TUMOUR**

**ALSO KNOWN AS GIANT CELL TUMOUR OF BONE**

**THE NEOPLASM CONTAINS LARGE NUMBERS OF OSTEOCLAST LIKE GIANT CELLS ADMIXED WITH MONONUCLEAR CELLS**

**USUALLY ARISES FROM EPIPHYESSES OF LONG BONES**

**DISTAL FEMUR, PROXIMAL TIBIA, PROXIMAL HUMERUS AND DISTAL RADIUS ARE USUAL SITES**

## **OSTEOCLASTOMA - GIANT CELL TUMOUR**

**MULTINUCLEATED GIANT CELLS ARE  
THE CLASSICAL HISTOLOGICAL  
PICTURE**

**GIANT CELLS ARE DERIVED FROM  
FUSION OF MONOCYTES**

**NEOPLASTIC COMPONENT IS MADE  
OF ROUND TO SPINDLE SHAPED  
MONONUCLEAR CELLS**

# **RENAL CELL CARCINOMA**

**PATIENT PRESENTS WITH MASS  
IN THE ABDOMEN**

**PAINLESS HAEMATURIA AND  
COSTOVERTEBRAL PAIN**

**OCCURS AFTER THE 4TH DECADE**

**RENAL BIOPSY IS DONE FOR  
CONFIRMATION OF DIAGNOSIS**

**NEPHRECTOMY IS DONE**



VACUOLATED TUMOUR CELLS



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# **RENAL CELL CARCINOMA**

**THESE TUMOURS ARE DERIVED FROM  
RENAL TUBULAR EPITHELIUM**

**HENCE THEY PREDOMINANTLY AFFECT  
THE CORTEX OF THE KIDNEY**

**THREE TYPES - CLEAR CELL CARCINOMA,  
PAPILLARY RENAL CELL CARCINOMA AND  
CHROMOPHOBE RENAL CARCINOMA**

**CLEAR CELL CARCINOMA IS THE MOST  
COMMONEST TYPE**

# **RENAL CELL CARCINOMA**

**TUMOR CELLS APPEAR VACUOLATED DUE TO  
PRESENCE OF LIPID MATERIAL AND CAN BE  
DEMARCATED ONLY BY THEIR CELL MEMBRANE  
THEIR NUCLEI ARE SMALL AND ROUND  
ALSO SEEN ARE GRANULAR CELLS  
RESEMBLING TUBULAR EPITHELIUM WHICH  
HAVE SMALL ROUND REGULAR NUCLEI  
ENCLOSED WITHIN GRANULAR PINK  
CYTOPLASM  
CONNECTIVE TISSUE STROMA IS USUALLY  
SCANT BUT HIGHLY VASCULARISED**

# **CHRONIC PYELONEPHRITIS**

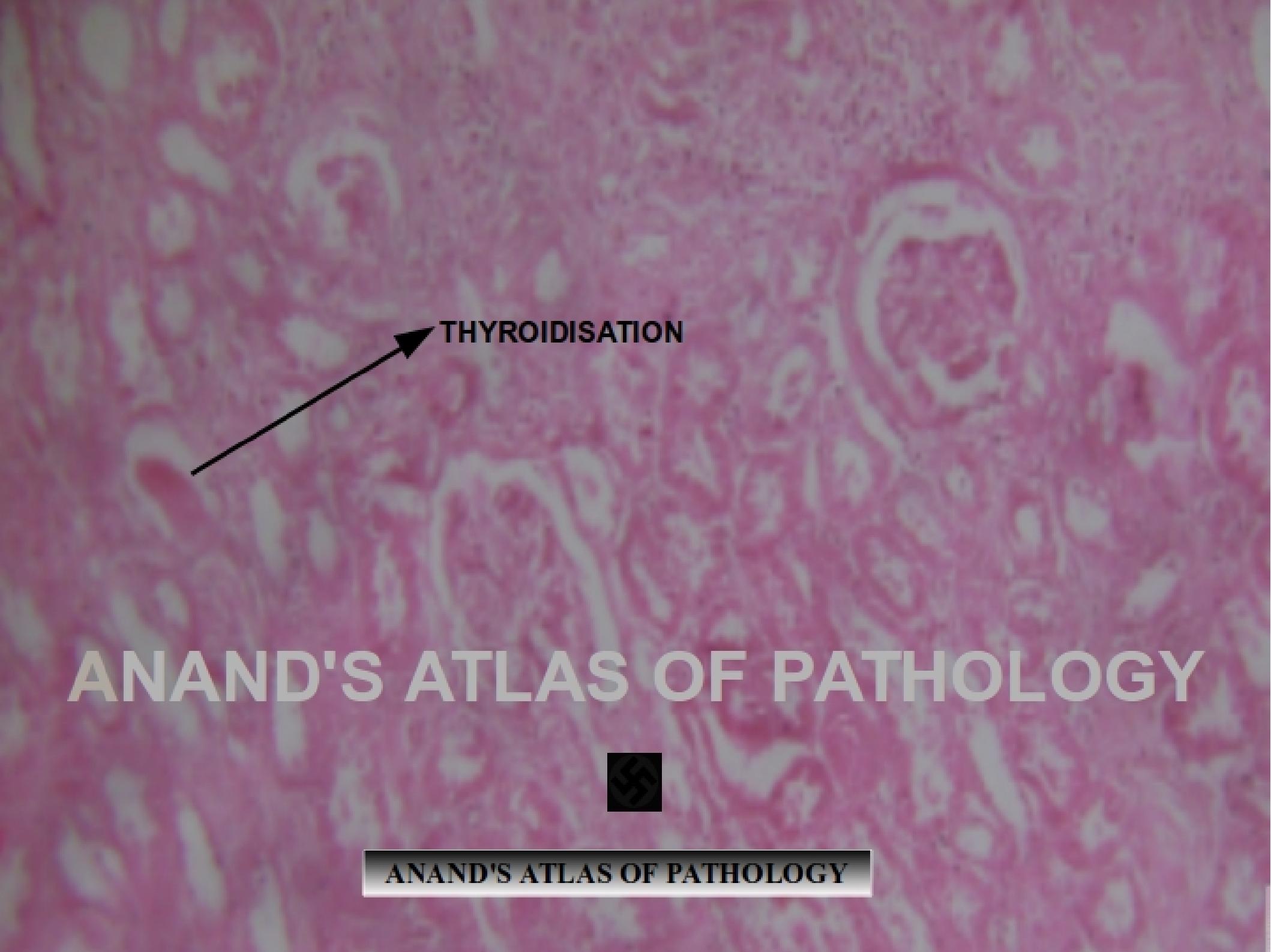
**PATIENT IS A DIABETIC**

**PRESENTING WITH FEVER,  
MALAISE AND BACKPAIN**

**PYURIA IS A PRESENTING FEATURE**

**ULTRASOUND AND RENAL BIOPSY  
LEADS TO CONFIRMATION  
OF DIAGNOSIS**

**NEPHRECTOMY IS DONE IN EXTREME CASES**

A black and white photomicrograph of thyroid tissue. The image shows several thyroid follicles, which are spherical structures with a distinct internal boundary. A single, prominent cell is highlighted with a black arrow and the label 'THYROIDISATION'. This cell appears larger and more densely packed than the surrounding epithelial cells.

THYROIDISATION

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# **CHRONIC PYELONEPHRITIS**

**THIS CONDITION PREDOMINANTLY PRESENTS WITH INTERSTITIAL INFLAMMATION AND SCARRING OF RENAL PARENCHYMA ASSOCIATED WITH VISIBLE SCARRING AND DEFORMITY OF PELVICALYCEAL SYSTEM. UNEVEN INTERSTITIAL FIBROSIS, INFLAMMATORY INFILTRATE OF LYMPHOCYTES AND PLASMA CELLS ARE SEEN**

# **CHRONIC PYELONEPHRITIS**

**DILATATION OR CONTRACTION OF LOBULES  
WITH ATROPHY OF LINING EPITHELIUM ARE  
SEEN  
COLLOID CASTS THAT SUGGEST  
APPEARANCE OF THYROID TISSUE CALLED  
AS THYROIDISATION IS SEEN  
CHRONIC INFLAMMATORY INFILTRATION  
AND FIBROSIS OF CALYCEAL MUCOSA AND  
WALL CAN BE VISUALISED**

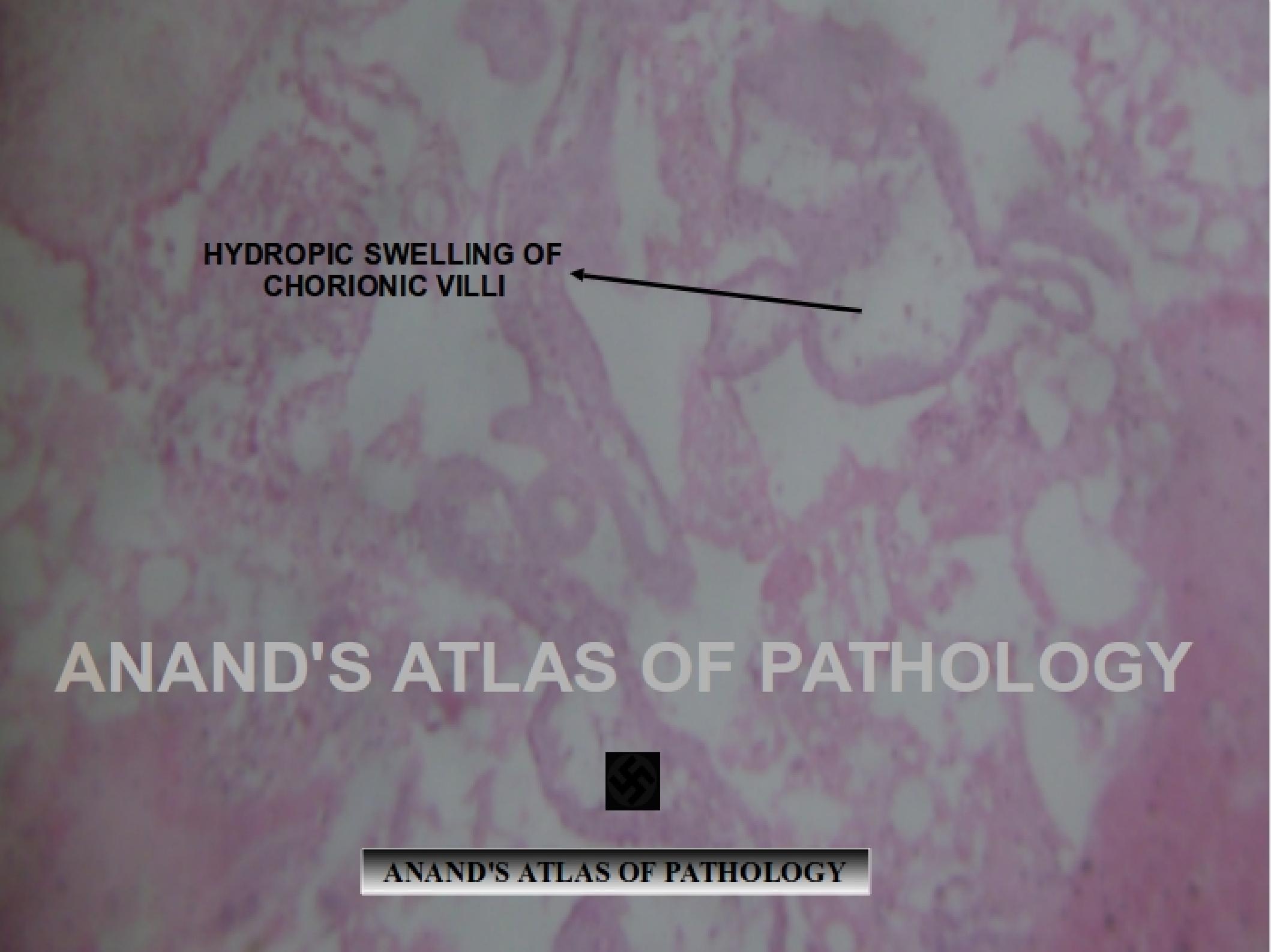
# **VESICULAR MOLE**

**FEMALE PATIENT USUALLY PRESENTS  
WITH AMENORRHOEA AND BLEEDING  
PER VAGINUM**

**GROSS APPEARANCE RESEMBLES  
GRAPE LIKE MASSES**

**SERUM HCG LEVELS ARE ELEVATED**

**DILATATION AND CURETTAGE IS DONE**



HYDROPIC SWELLING OF  
CHORIONIC VILLI

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# **VESICULAR MOLE**

**IT IS A GESTATIONAL TROPHOBLASTIC  
DISEASE**

**ALSO KNOWN AS HYDATIDIFORM MOLE**

**IT CAN BE COMPLETE OR PARTIAL**

**CHARACTERISED BY VOLUMINOUS MASS  
OF SWOLLEN, CYSTICALLY DILATED  
CHORIONIC VILLI APPEARING LIKE A  
BUNCH OF GRAPES**

# **VESICULAR MOLE**

**HISTOLOGICAL PICTURE - HYDROPIC  
SWELLING OF CHORIONIC VILLI AND ABSENCE  
OF VASCULARISATION OF THE VILLI  
THE CENTRAL SUBSTANCE OF THE VILLI IS  
LOOSE MYXOMATOUS AND OEDEMATOUS  
STROMA**

**THE CHORIONIC EPITHELIUM SHOWS SOME  
DEGREE OF PROLIFERATION OF  
CYTOTROPHOBlast AND  
SYNCYTiotrophoblast**

# **PAPILLARY CARCINOMA OF THYROID**

**PRESENTS AS A SOLITARY NODULE  
IN THE MIDLINE OF THE NECK**

**SWELLING IS OF A SHORT DURATION**

**ACCOMPANIED BY HOARSENESS OF VOICE**

**BIOPSY IS THE INVESTIGATIVE PROCEDURE**



PSAMMOMA BODY

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# **PAPILLARY CARCINOMA OF THYROID**

**MOST COMMON FORM OF THYROID  
MALIGNANCY**

**NUCLEI OF MALIGNANT CELLS CONTAIN  
FINELY DISPERSED CHROMATIN  
PRESENTING A GROUND GLASS  
APPEARANCE**

**PAPILLARY ARCHITECTURE IS PRESENT  
NEOPLASTIC PAPILLAE HAVE DENSE  
FIBROVASCULAR CORES**

# **PAPILLARY CARCINOMA OF THYROID**

**CONCENTRICALLY CALCIFIED  
STRUCTURES CALLED AS  
PSAMMOMA BODIES ARE PRESENT  
WITHIN THE PAPILLAE**

**SOME TUMOURS ARE COMPOSED  
PREDOMINANTLY OF FOLLICLES  
ONLY**

**METASTASIS IS USUALLY TO THE  
ADJACENT LYMPH NODES**

# **ADENOCARCINOMA OF STOMACH**

**PATIENT PRESENTS WITH SEVERE PAIN IN  
THE ABDOMEN, LOSS OF APETITE AND  
WEIGHT LOSS**

**BIOPSY IS CONFIRMATORY**

**PARTIAL OR SUBTOTAL  
GASTRECTOMY IS DONE**

A histological slide showing a tissue sample with a glandular pattern. The tissue is stained with hematoxylin, showing purple nuclei and pink cytoplasm. Several glandular structures are visible, with one prominent one in the center-right. A black arrow points upwards from the text to the top of this central glandular structure.

NEOPLASTIC GROWTH IN  
GLANDULAR PATTERN

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# **ADENOCARCINOMA OF STOMACH**

**ADENOCARCINOMA IS A LESION IN WHICH  
NEOPLASTIC EPITHELIAL CELLS GROW IN  
GLAND PATTERNS**

**IN EARLY STAGE THE LESION IS CONFINED TO  
MUCOSA AND SUBMUCOSA**

**IN ADVANCED STAGE THE LESION EXTENDS  
BELOW THE SUBMUCOSA INTO THE  
MUSCULAR WALL**

**METASTASIS - LYMPHATIC SPREAD - LEFT  
SUPRACLAVICULAR LYMPHADENITIS -  
VIRCHOW'S NODES**

# **ADENOCARCINOMA OF STOMACH**

**HISTOLOGICAL TYPES - INTESTINAL AND DIFFUSE VARIANTS**

**INTESTINAL - MALIGNANT CELLS FORMING NEOPLASTIC INTESTINAL GLANDS RESEMBLING COLONIC ADENOCARCINOMA**

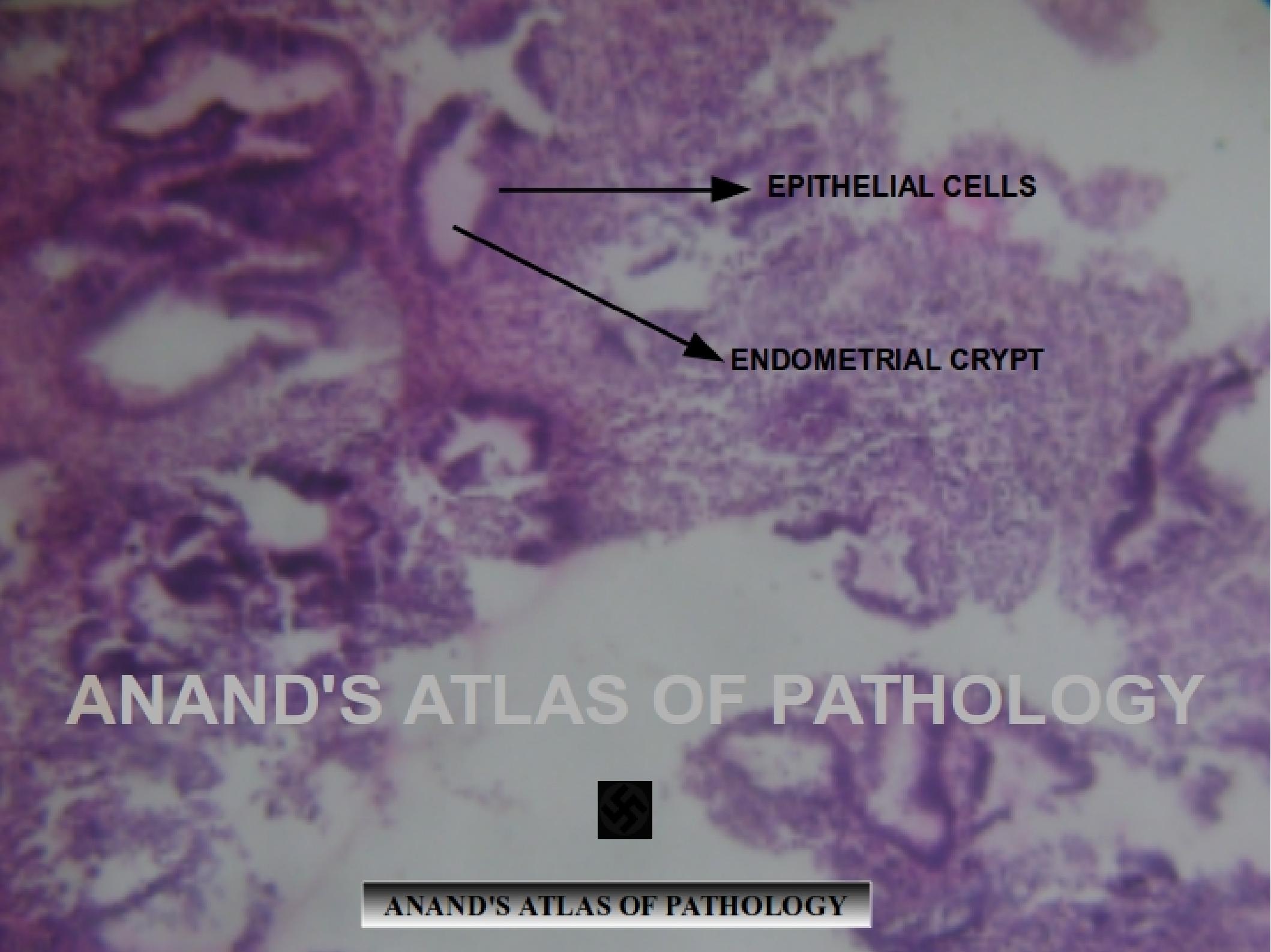
**DIFFUSE - GASTRIC TYPE MUCOSAL CELLS, THEY DO NOT FORM GLANDS - SIGNET RING CELLS ARE SEEN**

**TRANSCOELOMIC SPREAD - TO OVARIES CAUSES KRUKENBERG'S TUMOUR**

# **PROLIFERATIVE ENDOMETRIUM**

**FEMALE PATIENT PRESENTS  
WITH HISTORY OF INFERTILITY**

**ENDOMETRIAL BIOPSY AND  
CURETTAGE IS DONE**



EPITHELIAL CELLS

ENDOMETRIAL CRYPT

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# **PROLIFERATIVE ENDOMETRIUM**

**IT IS THE OESTROGEN PHASE OF THE OVARIAN CYCLE**

**AFTER MENSTRUATION ONLY A THIN LAYER OF ENDOMETRIAL STROMA LIES AT THE BASE OF ORIGINAL ENDOMETRIUM**

**ONLY EPITHELIAL CELLS ARE LEFT IN THE REMAINING DEEP PORTIONS OF GLANDS AND CRYPTS OF ENDOMETRIUM**

**THE STROMAL CELLS AND EPITHELIAL CELLS PROLIFERATE RAPIDLY UNDER THE INFLUENCE OF OESTROGEN**

# **SECRETORY ENDOMETRIUM**

**Major. Dr. A. Anand**

**Major. Dr. A. Anand**

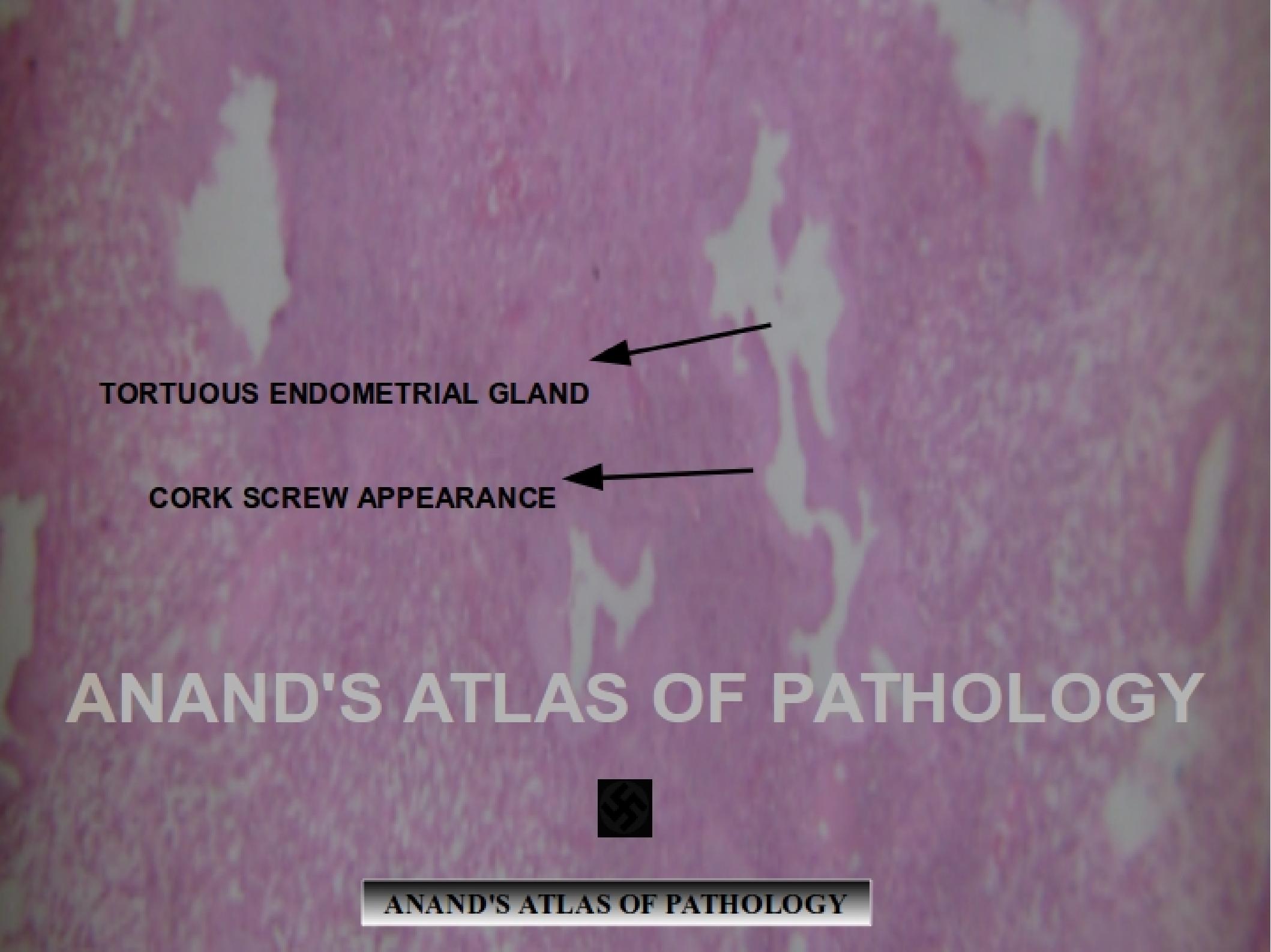
**Major. Dr. A. Anand**

**Major. Dr. A. Anand**

**RELATIVELY YOUNG FEMALE**

**PATIENT PRESENTS WITH  
HISTORY OF INFERTILITY**

**PREMENSTRUAL ENDOMETRIAL  
CURETTAGE IS DONE**



**TORTUOUS ENDOMETRIAL GLAND**

**CORK SCREW APPEARANCE**

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# **SECRETORY ENDOMETRIUM**

**IT IS THE PROGESTERONE PHASE OF THE OVARIAN CYCLE**

**THE ENDOMETRIAL GLANDS INCREASE IN TORTUOSITY PRESENTING A CORK SCREW APPEARANCE**

**EXCESS OF SECRETORY SUBSTANCES ACCUMULATE IN THE GLANDULAR EPITHELIAL CELLS**

**CYTOPLASM OF THE STROMAL CELLS ALSO INCREASE**

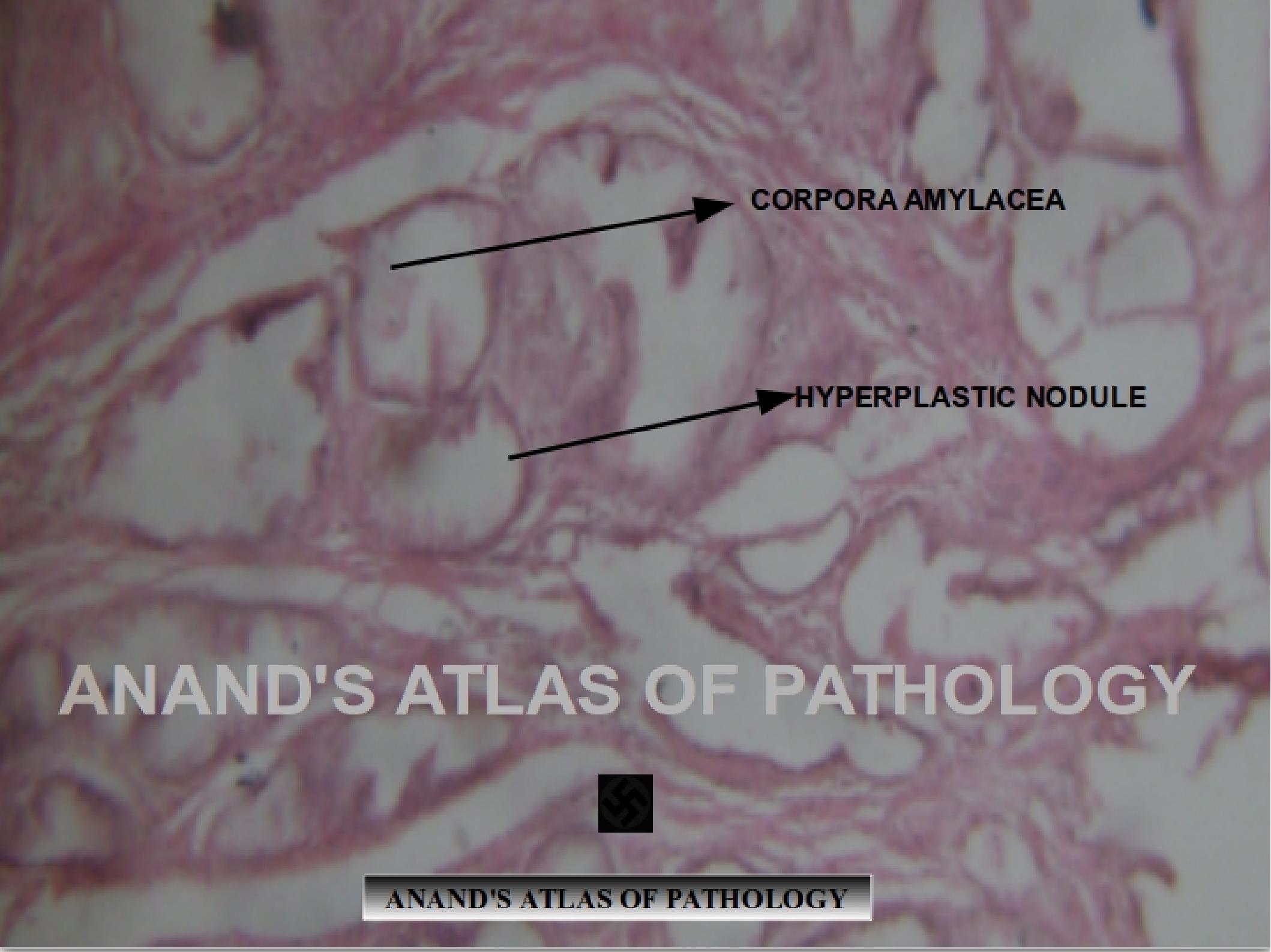
**THERE IS ALSO AN INCREASE OF LIPID AND GLYCOGEN DEPOSITS IN THE STROMAL CELLS**

# **BENIGN HYPERPLASIA OF PROSTATE**

**PATIENT IS USUALLY AN ELDERLY MALE IN THE  
6TH DECADE OF LIFE**

**PRESENTING COMPLAINTS INCLUDE FREQUENT  
MICTURITION, URGENCY,  
DRIBBLING DROPLETS OF URINE  
AND PAIN**

**PROSTATECTOMY IS DONE**

A histological slide of thyroid tissue. The image shows various thyroid follicles with colloid. Two specific structures are labeled with arrows: 'CORPORA AMYLACEA' points to a small, clear, circular structure within a follicle, and 'HYPERPLASTIC NODULE' points to a larger, more solid-looking cluster of cells within the tissue.

CORPORA AMYLACEA

HYPERPLASTIC NODULE

**ANAND'S ATLAS OF PATHOLOGY**



**ANAND'S ATLAS OF PATHOLOGY**

# **BENIGN HYPERPLASIA OF PROSTATE**

**ALSO KNOWN AS NODULAR HYPERPLASIA,  
GLANDULAR AND STROMAL HYPERPLASIA  
CHARACTERISED BY PROLIFERATION OF  
EPITHELIAL AND STROMAL ELEMENTS  
RESULTING IN ENLARGEMENT OF THE  
GLAND**

**ENLARGEMENT RESULTS IN URINARY  
OBSTRUCTION**

**ANDROGENS AND OESTROGENS PLAY A  
SYNERGISTIC ROLE IN DEVELOPMENT OF  
THIS CONDITION**

# **BENIGN HYPERPLASIA OF PROSTATE**

**IT ARISES FROM THE PERIURETHRAL GLANDS OF THE PROSTATE**

**HYPERPLASTIC NODULES ARE COMPOSED OF VARYING PROPORTIONS OF PROLIFERATING GLANDULAR ELEMENTS AND FIBROMUSCULAR STROMA**

**HYPERPLASTIC GLANDS ARE LINED BY TALL COLUMNAR CELLS AND A PERIPHERAL LAYER OF FLATTENED BASAL CELLS**

**GLANDULAR LUMEN USUALLY CONTAINS PROTINACEOUS SECRETORY MATERIAL CALLED AS CORPORA AMYLACEA**

# **COLLOID GOITRE**

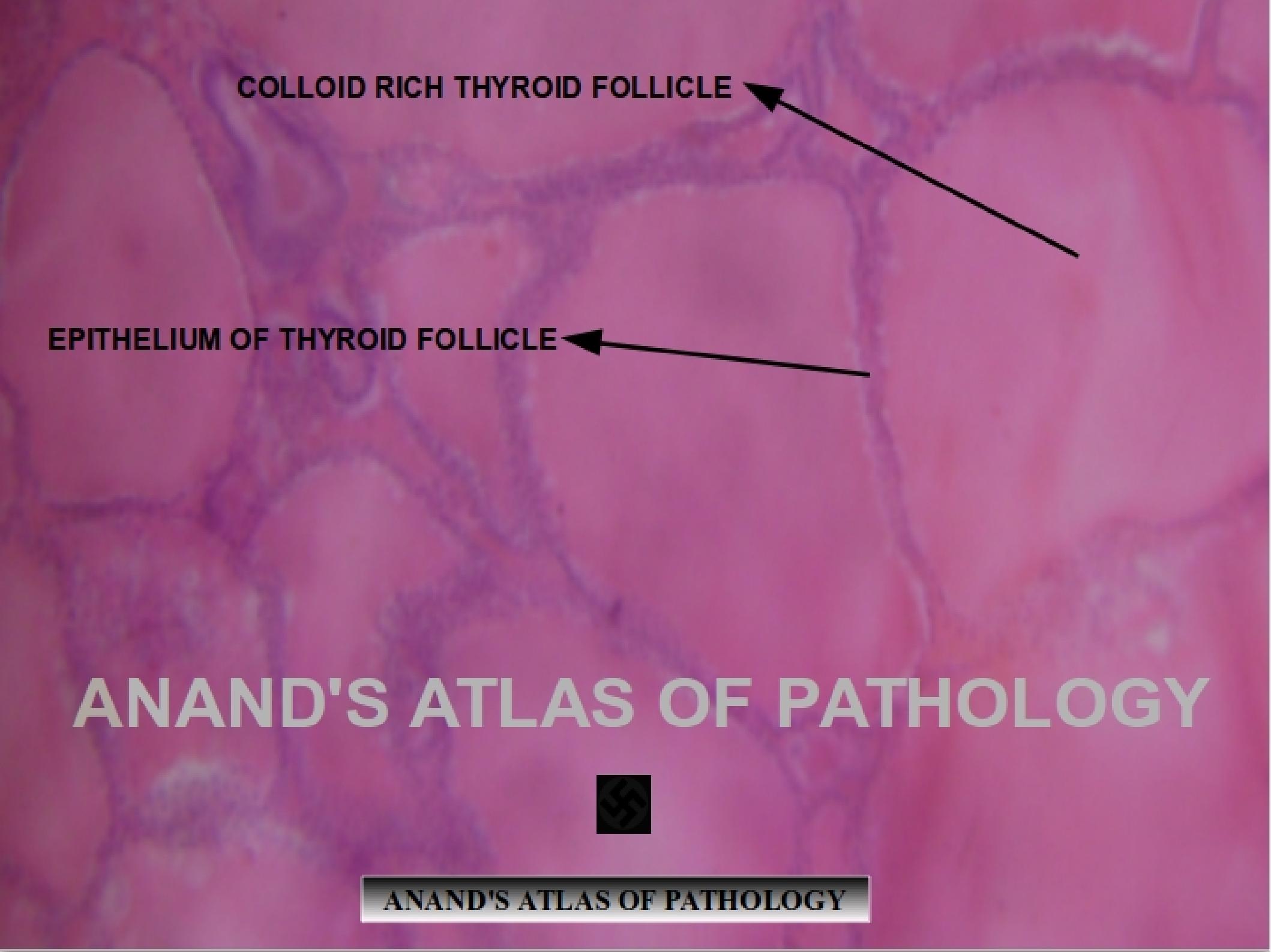
**PREDOMINANTLY SEEN IN YOUNG FEMALES**

**PRESENTS AS GLOBULAR SWELLING  
OF THE THYROID GLAND  
OF LONG STANDING DURATION**

**BIOPSY IS CONFIRMATORY**

**EXCISION OF MASS IS DONE**

**CUT SECTION OF MASS REVEALS BROWNISH COLLOID**



COLLOID RICH THYROID FOLLICLE

EPITHELIUM OF THYROID FOLLICLE

ANAND'S ATLAS OF PATHOLOGY



ANAND'S ATLAS OF PATHOLOGY

# **COLLOID GOITRE**

**GOITRE IS A SIMPLE ENLARGEMENT OF THYROID GLAND**

**IT IS THE MOST COMMON THYROID DISEASE**  
**IF DIETARY IODINE INCREASES OR DEMANDS FOR THYROID HORMONE DECREASES, THE STIMULATED FOLLICULAR EPITHELIUM INVOLUTES TO FORM AN ENLARGED COLLOID RICH GLAND CALLED AS COLLOID GOITRE**

**THE FOLLICULAR EPITHELIUM IS HYPERPLASTIC AND MAY BE FLATTENED OR CUBOIDAL DEPENDING ON THE LEVEL OF COLLOID**

# **LEIOMYOMA OF UTERUS (FIBROID UTERUS)**

**FEMALE PATIENT PRESENTS  
WITH COMPLAINTS OF MENORRHAGIA  
URINARY DISTURBANCE AND LOW BACK ACHE**

**ULTRASONOGRAPHY REVEALS MASS IN  
THE UTERINE WALLS**

**MAY BE SINGLE OR MULTIPLE**

**OCURS AROUND THE 4TH DECADE**

**HYSTERECTOMY IS A PREFERRED  
TREATMENT MODALITY**

WHORLING BUNDLES OF SMOOTH MUSCLE CELLS



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ANAND'S ATLAS OF PATHOLOGY

# **LEIOMYOMA OF UTERUS (FIBROID UTERUS)**

**BENIGN TUMOUR ARISING FROM SMOOTH MUSCLE CELLS IN THE MYOMETRIUM OF UTERUS ARE TERMED AS LEIOMYOMAS ALSO CALLED AS FIBROID UTERUS MICROSCOPICALLY IT SHOWS WHORLING BUNDLES OF SMOOTH MUSCLE CELLS DUPLICATING THE ARCHITECTURE OF NORMAL MYOMETRIUM. FOCI OF FIBROSIS, CALCIFICATION, ISCHAEMIC NECROSIS, CYSTIC DEGENERATION AND HAEMORRHAGE MAY BE PRESENT**

# **ACUTE APPENDICITIS**

**YOUNG INDIVIDUAL PRESENTS WITH  
SUDDEN ONSET OF FEVER, VOMITTING  
AND ABDOMINAL PAIN**

**TENDERNESS IS PRESENT IN THE  
RIGHT ILIAC FOSSA**

**BLOOD SMEAR REVEALS NEUTROPHILIA**

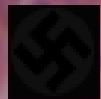
**ULTRASONOGRAPHY REVEALS AN ENLARGED  
AND INFLAMED APPENDIX**

**APPENDICECTOMY IS DONE**



TISSUE NECROSIS

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**ANAND'S ATLAS OF PATHOLOGY**

# **ACUTE APPENDICITIS**

**IN EARLY STAGES SCANT NEUTROPHILIC EXUDATES WILL BE FOUND IN THE COATS OF THE APPENDIX**  
**THE INFLAMMATORY REACTION TRANSFORMS NORMAL GLISTENING SEROSA INTO A DULL, GRANULAR RED MEMBRANE**  
**IN LATER STAGES, PROMINENT NEUTROPHILIC EXUDATE GENERATES A FIBROPURULENT REACTION OVER SEROSA**  
**THIS LEADS TO AN ABSCESS FORMATION**

# **ACUTE APPENDICITIS**

**ABSCESS FORMATION WITHIN THE  
WALLS LEADS TO ULCERATIONS AND  
FOCI OF NECROSIS IN THE MUCOSA**

**FURTHER DETERIORATION RESULTS  
IN GANGRENOUS NECROSIS OF  
APPENDICULAR MUCOSA**

# **TUBERCULOUS LYMPHADENITIS**

**PATIENT PRESENTS WITH  
HISTORY OF TUBERCULOSIS**

**MULTIPLE SWELLINGS / ENLARGEMENT  
OF LYMPH NODES IN THE NECK**

**CERVICAL GROUP OF LYMPH NODES  
ARE ENLARGED**

**LYMPH NODE EXCISION BIOPSY  
IS CONFIRMATORY**

A high-magnification light micrograph of tissue sections. The image shows various cellular components and architectural patterns. A distinct, circular cluster of cells with dense, eosinophilic (pink) cytoplasm is highlighted, representing a granuloma. A black arrow points from the word 'GRANULOMA' to the center of this highlighted structure.

GRANULOMA

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# **TUBERCULOUS LYMPHADENITIS**

**SECONDARY INFLAMMATION OF  
DRAINING LYMPH NODES IS CALLED  
AS LYMPHADENITIS**

**IT IS THE COMMONEST FORM OF  
EXTRAPULMONARY TUBERCULOSIS**

**USUALLY OCCURS IN THE CERVICAL  
REGION - SCROFULA**

# **TUBERCULOUS LYMPHADENITIS**

**AFFECTED LYMPH NODES SHOW  
GRANULOMATOUS INFLAMMATORY  
REACTION**

**MAY FORM CASEATING OR NON CASEATING  
TUBERCLES**

**GRANULOMAS ARE ENCLOSED WITHIN A  
FIBROELASTIC RIM PUNCTUATED BY  
LYMPHOCYTES**

**MULTINUCLEATED GIANT CELLS WILL BE  
PRESENT IN THE GRANULOMAS**

# **RHINOSPOROIDOSIS**

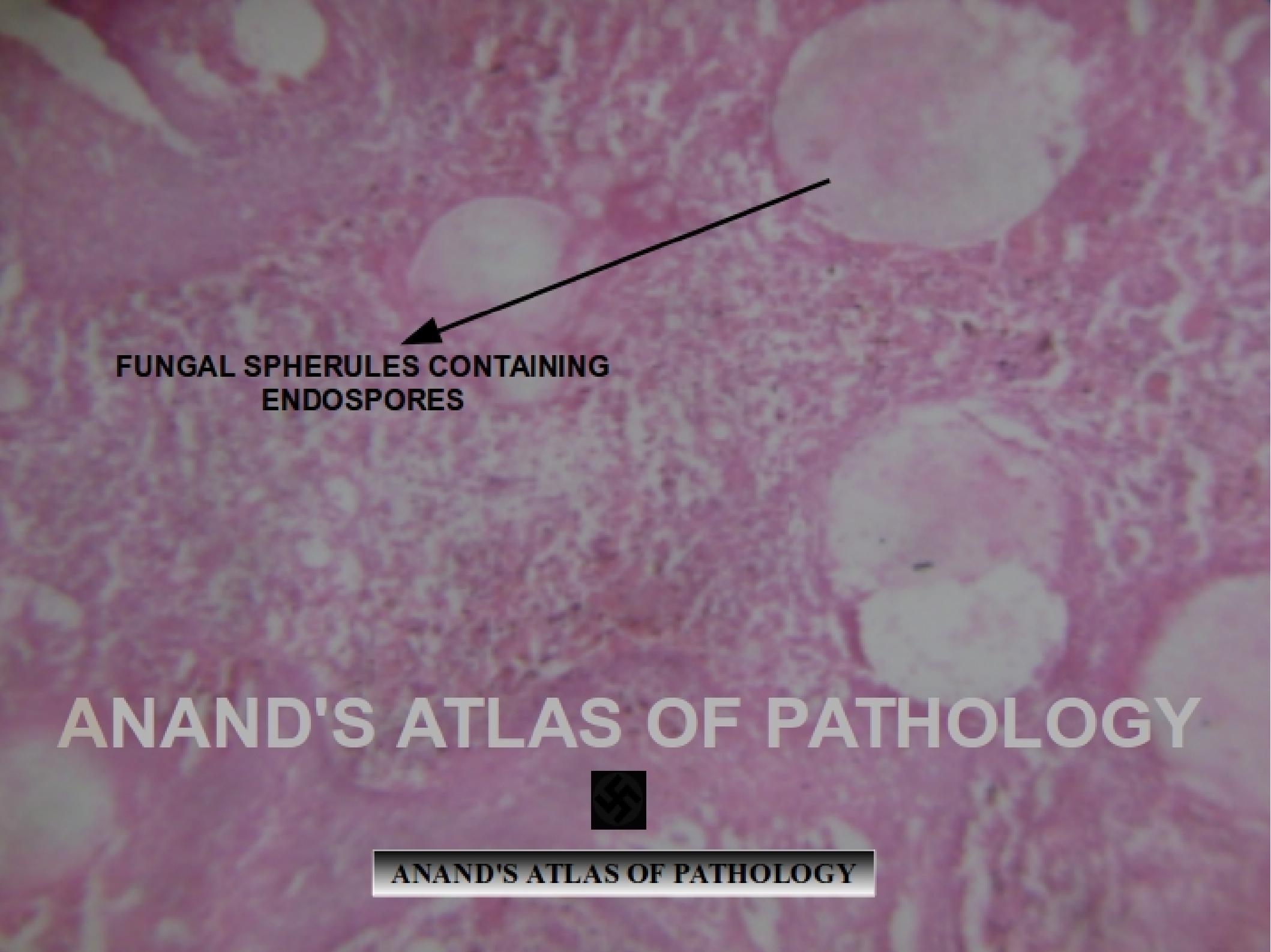
**COMMONLY OCCURS IN YOUNG  
INDIVIDUALS**

**PRESENTS AS A POLYP IN THE NOSE**

**USUALLY INFECTION SPREADS  
WHO COME IN CONTACT  
WITH WATER BODIES LIKE  
SWIMMING**

**POLYPECTOMY IS DONE**

**EXCISION BIOPSY IS CONFIRMATORY**



A black and white photomicrograph of a tissue sample. Several large, clear, circular structures, characteristic of fungal spherules, are visible. A black arrow points to one of these spherules in the upper left quadrant. The surrounding tissue has a granular appearance with some darker, more cellular areas.

**FUNGAL SPHERULES CONTAINING  
ENDOSPORES**

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**ANAND'S ATLAS OF PATHOLOGY**

# **RHINOSPOROIDOSIS**

**IT IS A CHRONIC GRANULOMATOUS DISEASE**

**A TYPE OF SUBCUTANEOUS MYCOSES**

**CAUSATIVE FUNGUS IS RHINOSPORIDIUM  
SEEBERI**

**MODE OF INFECTION IS NOT KNOWN BUT  
THOUGHT TO ORIGINATE FROM STAGNANT  
WATER OR AQUATIC LIFE**

**FUNGUS HAS NOT BEEN CULTIVATED IN A  
LABORATORY**

# **RHINOSPOROIDOSIS**

**CHARACTERISED BY DEVELOPMENT OF  
FRIABLE POLYPS CONFINED TO NOSE,  
MOUTH OR EYE**

**DISEASE IS LIMITED TO THE MUCOUS  
MEMBRANES**

**MICROSCOPICALLY LESION SHOWS LARGE  
NUMBERS OF FUNGAL SPHERULES  
EMBEDDED IN A STROMA OF CONNECTIVE  
TISSUE AND CAPILLARIES**

**THE SPHERULES CONTAIN THOUSANDS OF  
ENDOSPORES**

# **MADURA MYCOSIS**

**OCCURS IN AGRICULTURAL WORKERS**

**ALSO KNOWN AS MADURA FOOT**

**HISTORY OF A PENETRATING INJURY IS PRESENT**

**PATIENT PRESENTS WITH A MASS  
IN THE FOOT WITH MULTIPLE  
DISCHARGING SINUSES**

**EXCISION BIOPSY IS DONE**

A high-magnification H&E stained histological section. On the left, there is a large, irregularly shaped, pale-staining area representing a tissue sample. To the right of this area, a dense, pink-stained tissue structure is visible. A black arrow points from the text label to a specific dark, purple-stained granule within the pink-stained tissue.

FUNGAL GRANULES CONTAINING  
MADURELLA MYCETOMI

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**ANAND'S ATLAS OF PATHOLOGY**

# **MADURA MYCOSIS**

**IT IS A TYPE OF SUBCUTANEOUS MYCOSES  
DISEASE FIRST REPORTED FROM MADURAI  
IN 1842**

**IT IS A CHRONIC SLOWLY PROGRESSING  
FUNGAL INFECTION OF THE  
SUBCUTANEOUS TISSUE**

**CAUSATIVE ORGANISM IS BELIEVED TO  
ENTER THROUGH A MINOR TRAUMA  
ORGANISM IS MADURELLA MYCETOMI**

# **MADURA MYCOSIS**

**DISEASE USUALLY BEGINS AS A SWELLING IN THE FOOT  
IT BURROWS INTO DEEPER TISSUES AND RESULTS IN MULTIPLE DISCHARGING SINUSES  
MICROSCOPICALLY MICROCOLONIES OF AETIOLOGICAL AGENTS IN THE FORM OF GRANULES OR GRAINS CAN BE DEMONSTRATED**

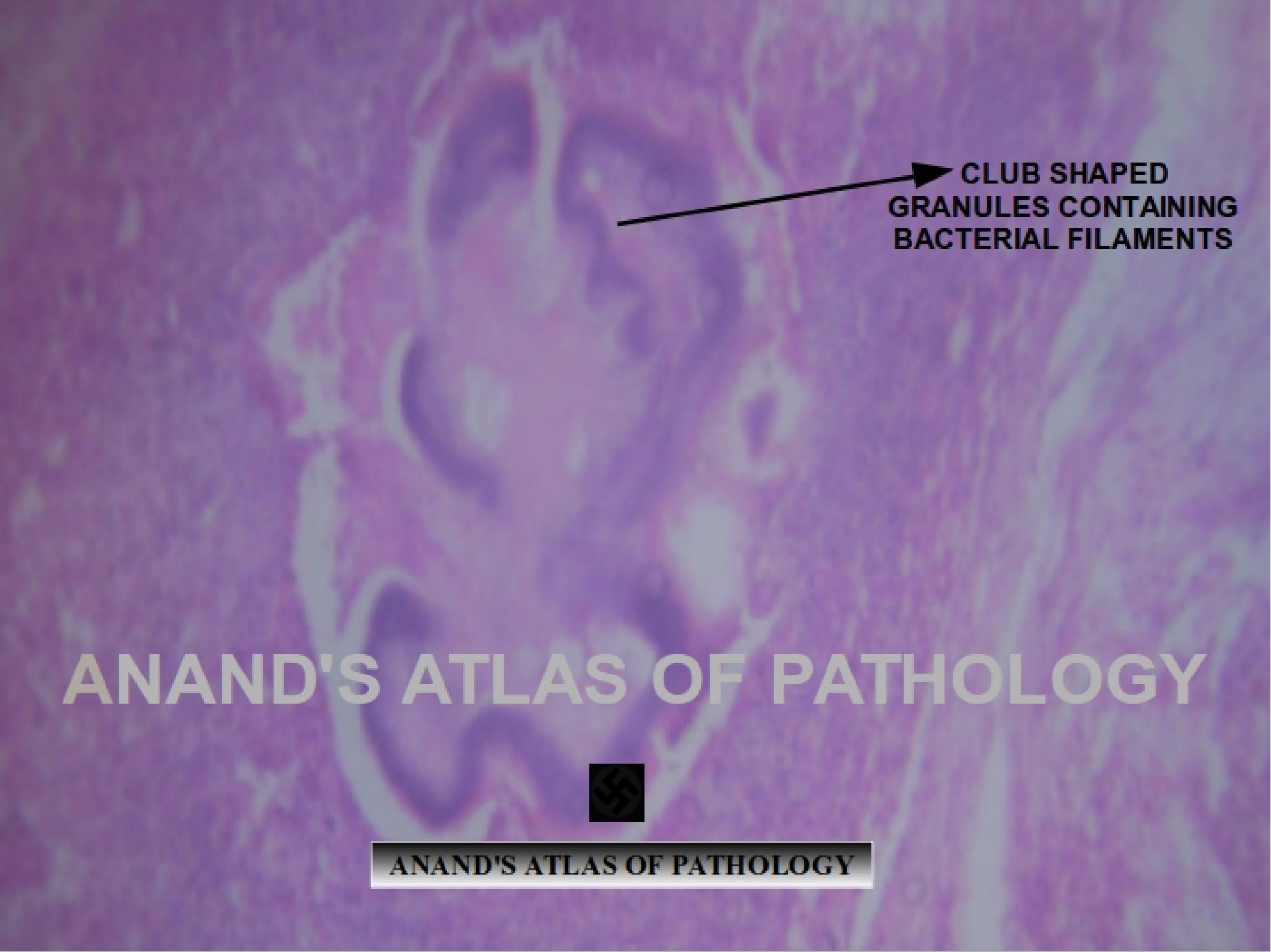
# **ACTINOMYCOSIS**

**PREDOMINANTLY SEEN IN FEMALES**

**PRESENTS AS A MASS AROUND  
THE CHEEKS AND THE JAW**

**MASS CONTAINS MULTIPLE  
DISCHARGING SINUSES**

**BIOPSY IS CONFIRMATORY**



CLUB SHAPED  
GRANULES CONTAINING  
BACTERIAL FILAMENTS

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# **ACTINOMYCOSIS**

**IT IS A CHRONIC GRANULOMATOUS INFECTION  
CHARACTERISED BY INDURATED SWELLINGS,  
SUPPURATION AND DISCHARGE OF SULPHUR  
GRANULES**

**PRESENCE OF MULTIPLE DISCHARGING  
SINUSES**

**CERVICOFACIAL TYPE PRESENTS WITH  
INDURATED LESIONS ON THE CHEEK AND  
SUBMAXILLARY REGIONS**

**ACTINOMYCOSES CAN ALSO PRESENT AS A  
MYCETOMA**

# **ACTINOMYCOSIS**

**MICROSCOPICALLY THE GRANULES ARE  
BACTERIAL COLONIES WITH DENSE  
NETWORK OF FILAMENTS SURROUNDED BY  
A PERIPHERAL ZONE OF SWOLLEN  
RADIATING CLUB SHAPED STRUCTURES  
THIS IS SUN RAY APPEARANCE  
THE CLUBS ARE FORMED BY DEPOSITION  
OF LIPOID MATERIAL AROUND THE  
BACTERIAL FILAMENTS AS A PART OF  
TISSUE REACTION**

# **FIBROADENOMA - MIXED**

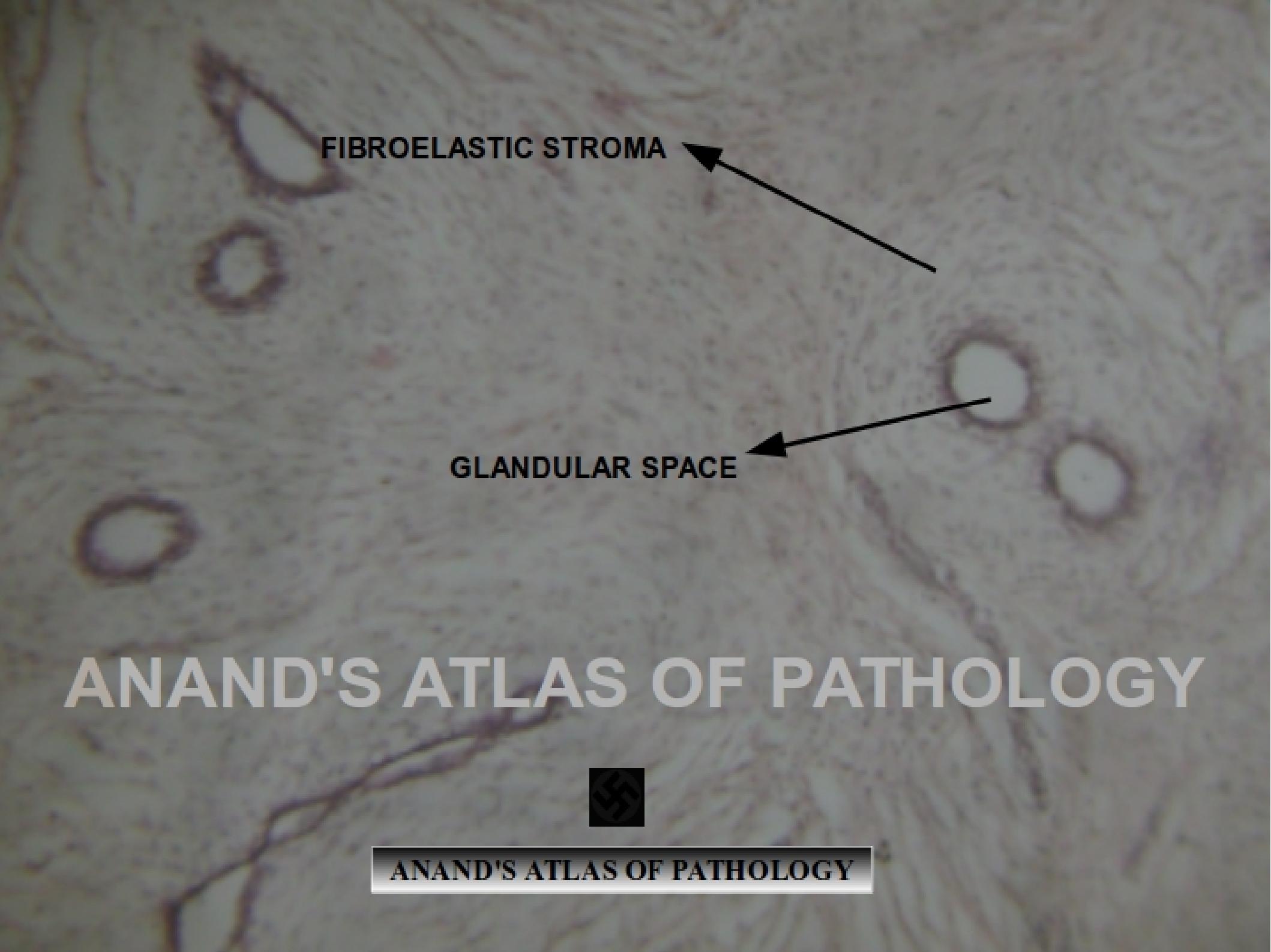
**OCCURS IN YOUNG FEMALES**

**PRESENTS AS A FREELY MOBILE MASS  
IN THE BREAST**

**ALSO KNOWN AS THE BREAST MOUSE**

**FNAC IS DONE**

**EXCISION BIOPSY IS DONE**



FIBROELASTIC STROMA

GLANDULAR SPACE

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# **FIBROADENOMA - MIXED**

**FIBROADENOMA OF BREAST IS A COMMON MIXED TUMOUR**

**IT IS ALWAYS BENIGN, RARELY UNDERGOES MALIGNANT CHANGE**

**TUMOUR CONTAINS A MIXTURE OF PROLIFERATED DUCTAL ELEMENTS (ADENOMA) EMBEDDED IN A LOOSE FIBROUS TISSUE (FIBROMA)**

**IT APPEARS IN YOUNG WOMEN AND AN INCREASE IN OESTROGEN ACTIVITY IS THOUGHT TO PLAY A ROLE IN ITS DEVELOPMENT**

# **FIBROADENOMA - MIXED**

**HISTOLOGICALLY THERE IS A LOOSE FIBROELASTIC STROMA CONTAINING DUCT-LIKE EPITHELIUM LINED SPACES OF VARIOUS FORMS AND SIZES**  
**THESE GLANDULAR SPACES ARE LINED WITH SINGLE OR MULTIPLE LAYERS OF CELLS AND HAVE A WELL DEFINED INTACT BASEMENT MEMBRANE**

# **SECTION - 2**

# **LIST OF COLOUR PLATES**

**CARCINOMA OF BREAST**

**ASCITIC FLUID - SECONDARY  
DEPOSITS**

# **CARCINOMA OF BREAST**

**OCCURS PREDOMINANTLY IN FEMALES**

**RARELY CAN OCCUR IN MALES ALSO**

**USUALLY PRESENTS AROUND THE 5TH DECADE**

**DIFFUSE MASS PRESENT IN THE BREAST**

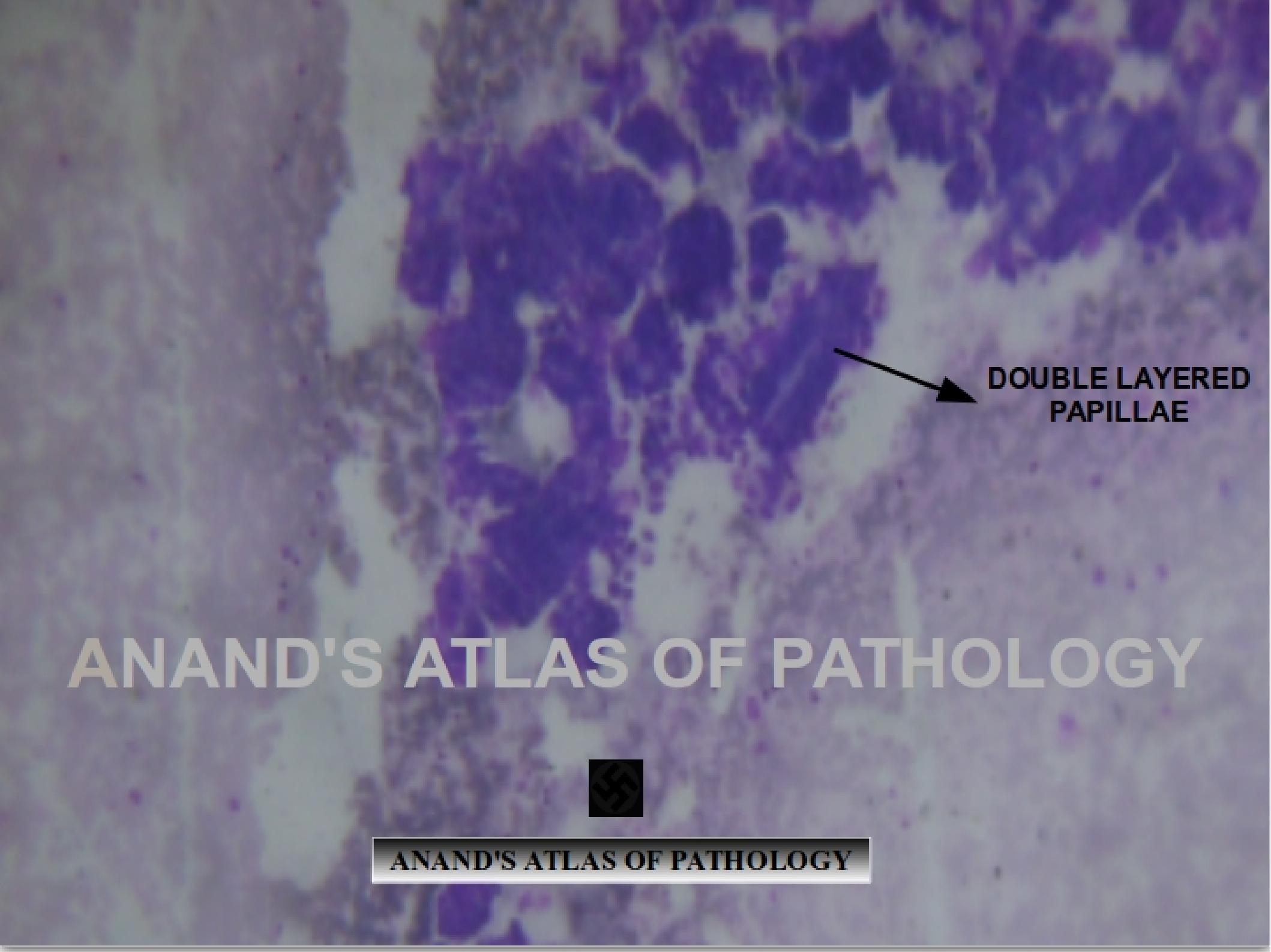
**REGIONAL LYMPHADENITIS IS PRESENT**

**SKIN OVER THE BREAST RESEMBLES  
AN ORANGE PEEL (PEAU D'ORANGE)**

**NIPPLE IS RETRACTED**

**FNAC IS THE CHOICE OF INVESTIGATION**

**MASTECTOMY IS DONE**



DOUBLE LAYERED  
PAPILLAE

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# **CARCINOMA OF BREAST**

**FINE NEEDLE ASPIRATION CYTOLOGY IS A LABORATORY METHOD FOR DIAGNOSIS OF MALIGNANCY**  
**INVOLVES ASPIRATION OF CELLS FROM A MASS FOLLOWED BY CYTOLOGICAL EXAMINATION OF THE SMEAR**  
**DONE USUALLY IN PATIENTS NOT FIT FOR OPEN BIOPSY**  
**CARCINOMA BREAST IS NOT COMMON IN WOMEN BELOW THE AGE OF 30 YEARS**

# **CARCINOMA OF BREAST**

**FEATURES COMMON TO ALL INVASIVE CANCERS**

**BREAST LUMP**

**FIXITY TO CHEST WALL**

**RETRACTION OR DIMPLING OF NIPPLE**

**LYMPHOEDEMA**

**PEAU D'ORANGE - THICKENING OF**

**SKIN AROUND EXAGGERATED HAIR FOLLICLES**

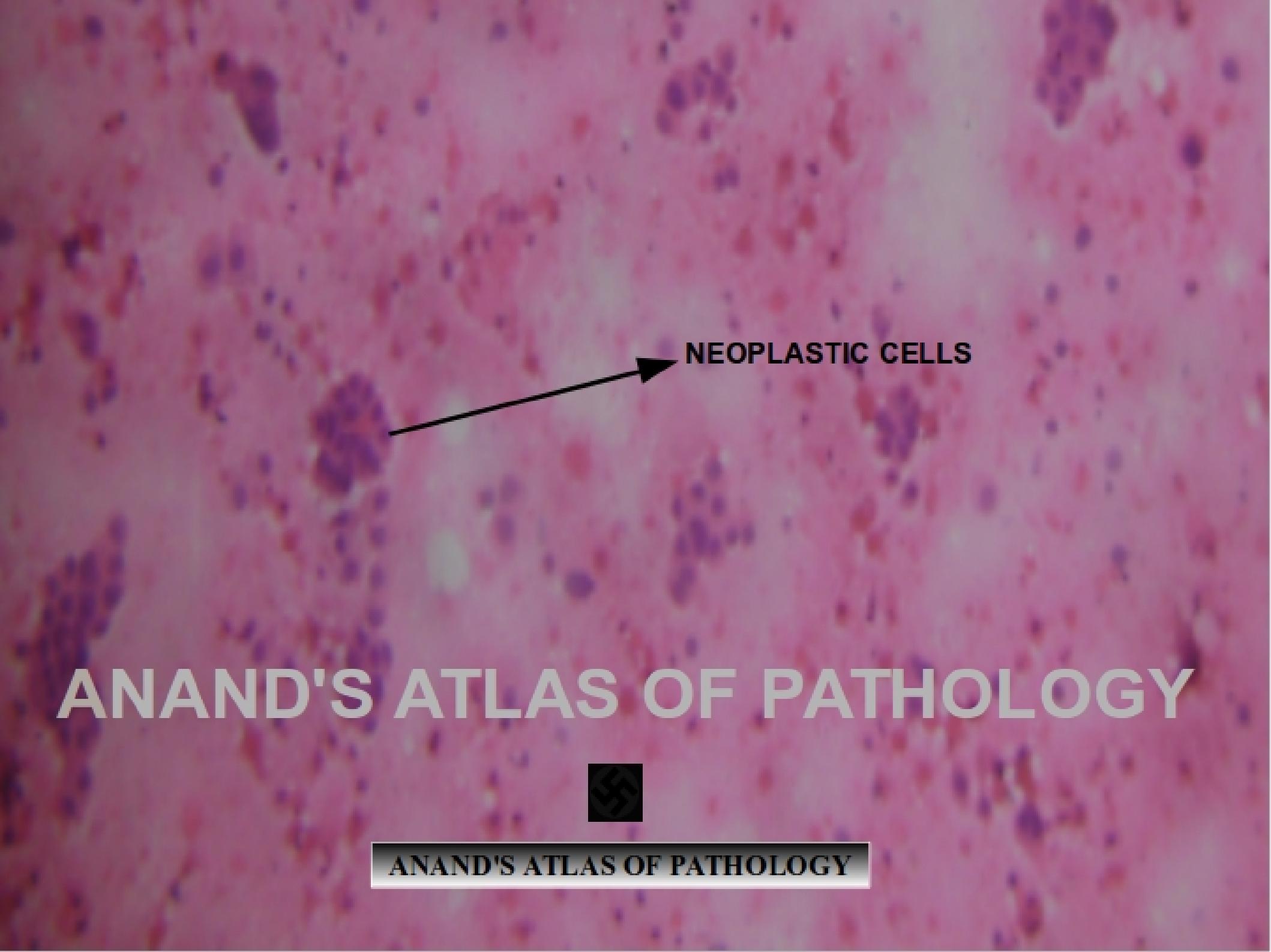
# **ASCITIC FLUID - SECONDARY DEPOSITS**

**ASCITES – COLLECTION OF FLUID IN THE  
GENERAL PERITONEAL CAVITY**

**THIS COLLECTION CAN BE SECONDARY TO  
LIVER DYSFUNCTION OR MAY BE  
DUE TO MALIGNANCY IN PELVIC ORGANS**

**THIS CASE PERTAINS TO MASS IN THE OVARY  
IN A WOMAN IN THE 7TH DECADE**

**THE ASPIRATED FLUID WAS HAEMORRHAGIC**



NEOPLASTIC CELLS

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# **ASCITIC FLUID - SECONDARY DEPOSITS**

**INCREASED FLUID IN INTERSTITIAL TISSUE SPACES IS TERMED AS OEDEMA**

**ACCUMULATION OF FLUID IN THE GENERAL PERITONEAL CAVITY IS TERMED AS HYDROPERITONEUM OR ASCITIS**

**ASCITIC FLUID ASPIRATION AND CYTOLOGICAL SMEAR PREPARATION IS A LABORATORY METHOD FOR DIAGNOSIS OF NEOPLASIA**

**PRIMARY IN THIS CASE - OVARIAN MALIGNANCY.**

# **ASCITIC FLUID - SECONDARY DEPOSITS**

**ASCITIC FLUID ASPIRATION AND CYTOLOGY IS DONE FOR DIAGNOSING PRIMARY SITE OF MALIGNANCY - FLUID IS USUALLY HAEMORRHAGIC**  
**PROBABLE SITES OF MALIGNANCY - ENDOMETRIUM OF UTERUS, LUNGS, URINARY BLADDER, PROSTATE AND STOMACH**

**NEOPLASTIC CELLS ARE LESS COHESIVE THAN NORMAL CELLS HENCE THEY ARE SHED INTO BODY FLUIDS - EXFOLIATION**

**SHED CELLS ARE EVALUATED FOR FEATURES OF ANAPLASIA INDICATIVE OF THEIR ORIGIN OF CANCER**

# **SECTION - 3**

## **HAEMATOLOGY SLIDES**

# **LIST OF COLOUR PLATES**

**IRON DEFICIENCY ANAEMIA**

**NEUTROPHILIA**

**EOSINOPHILIA**

**ACUTE MYELOID LEUKEMIA**

**ACUTE LYMPHOCYTIC LEUKEMIA**

**CHRONIC MYELOID LEUKEMIA**

**CHRONIC LYMPHOCYTIC LEUKEMIA**

**MULTIPLE MYELOMA**

# **IRON DEFICIENCY ANAEMIA**

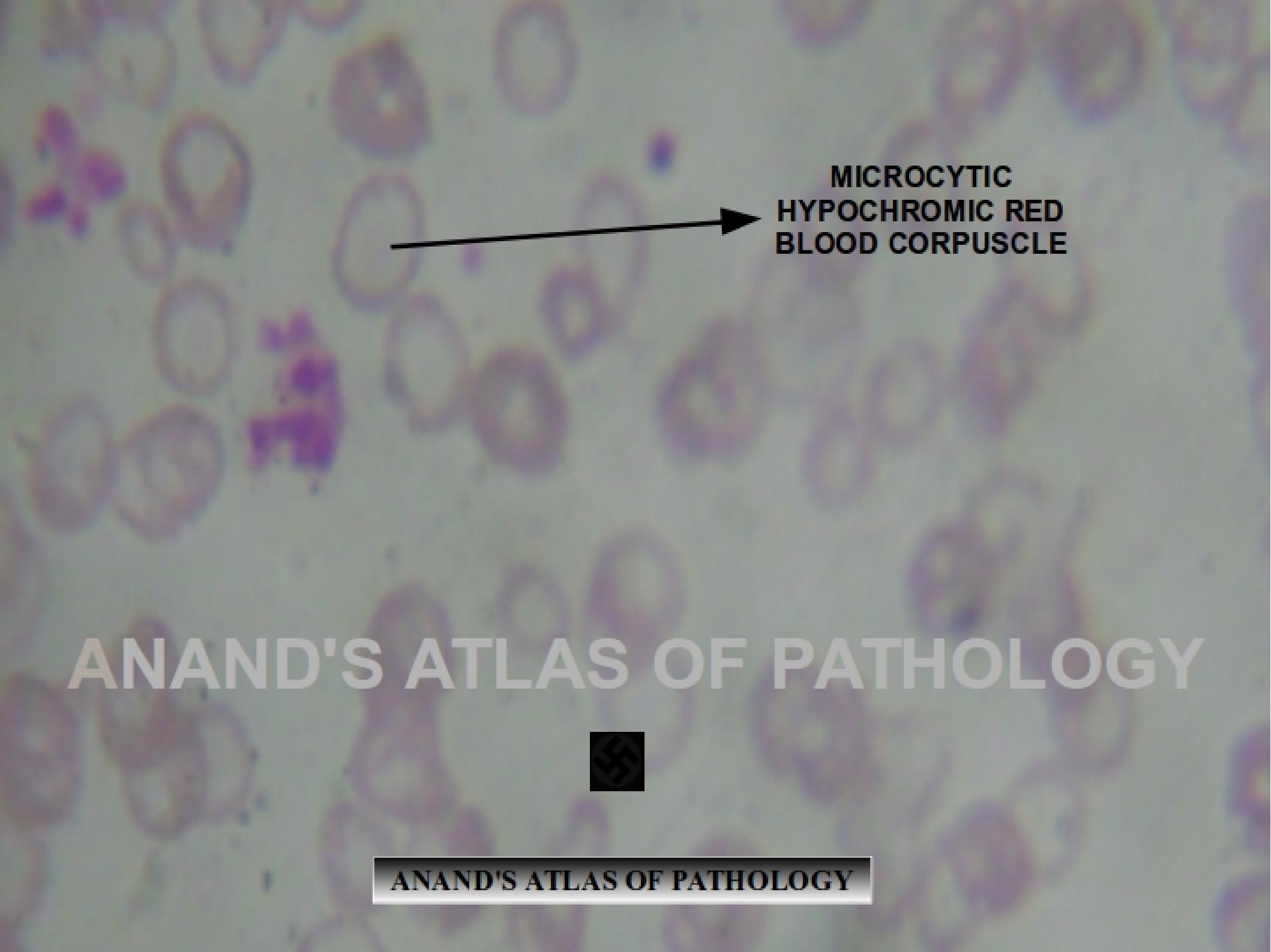
**THERE IS SEVERE REDUCTION  
IN HAEMOGLOBIN %**

**VERY COMMON IN WOMEN**

**CAN ALSO OCCUR IN WORM INFESTATION  
AND MALIGNANCY**

**PREGNANCY IS A PROBABLE  
PHYSIOLOGICAL CAUSE**

**PERIPHERAL BLOOD SMEAR IS  
THE COMMONEST INVESTIGATION**



MICROCYTIC  
HYPOCHROMIC RED  
BLOOD CORPUSCLE

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# **IRON DEFICIENCY ANAEMIA**

**MOST COMMONEST FORM OF NUTRITIONAL DEFICIENCY**

**MICROSCOPICALLY RBC'S ARE MICROCYTIC AND HYPOCHROMIC REFLECTING THE REDUCED MCV AND MCHC**

**IRON DEFICIENCY ANAEMIA IS USUALLY ACCCOMPANIED BY AN INCREASE IN THE PLATELET COUNT**

**PICTURE WILL ALSO SHOW NORMOBLASTIC HYPERPLASIA**

**HAEMOSIDERIN IN CYTOPLASM FORM LARGE CLUSTERS**

# **NEUTROPHILIA**

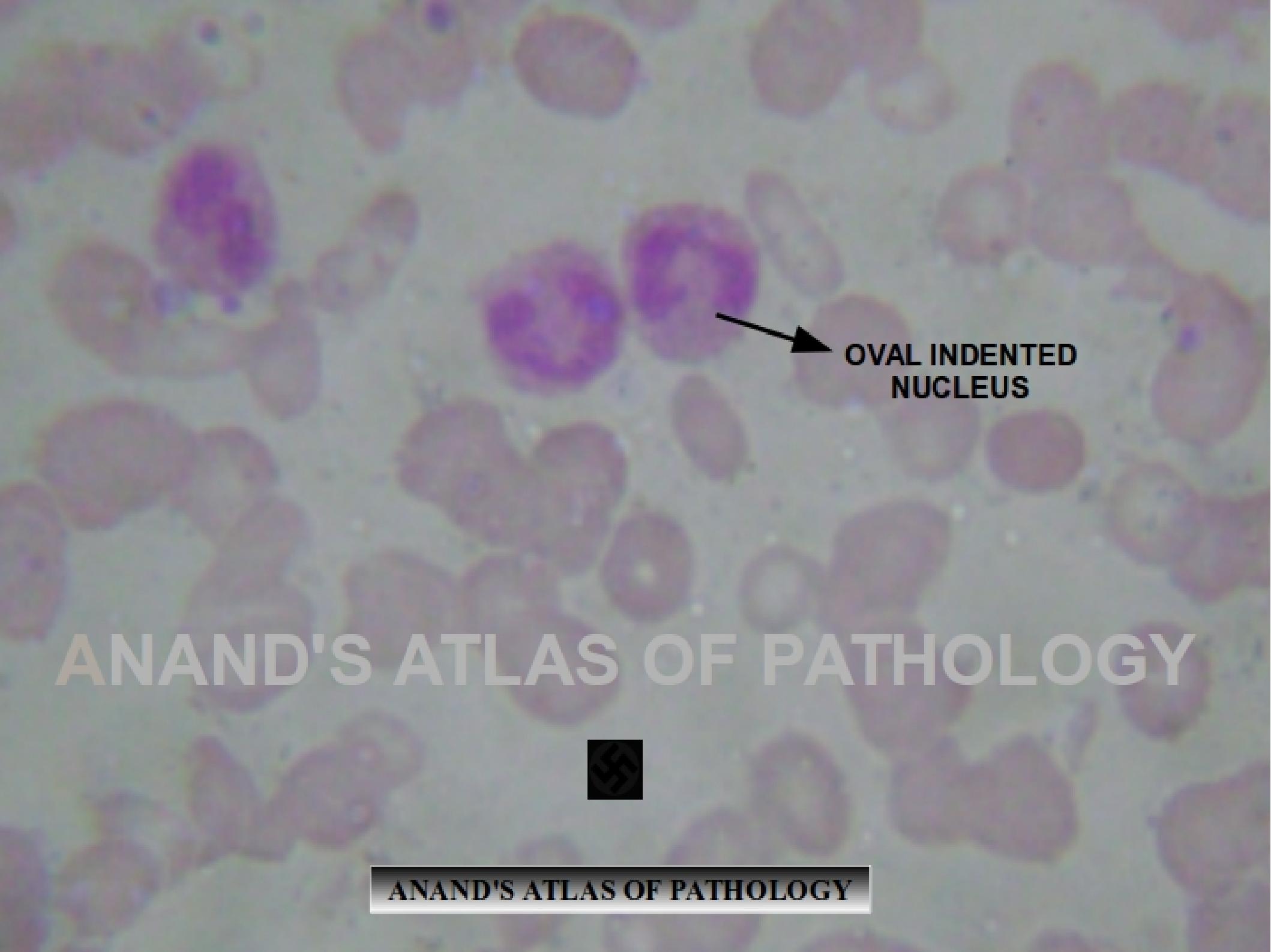
**PATIENT USUALLY PRESENTS  
WITH FEVER AND MALAISE**

**COUGH WITH EXPECTORATION  
IS PRESENT**

**SPUTUM USUALLY RESEMBLES PUS**

**LUNG OPACITY IS SEEN IN AN XRAY**

**PERIPHERAL BLOOD SMEAR IS TAKEN**

A microscopic image showing a cluster of cells. One cell in the center-left is highlighted with a black arrow pointing to its nucleus. The nucleus is described as being oval and indented.

OVAL INDENTED  
NUCLEUS

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# **NEUTROPHILIA**

**NEUTROPHILIA IS RELATIVELY A SELECTIVE INCREASE IN POLYMORPHONUCLEAR CELLS INDUCED BY BACTERIAL INFECTIONS**

**IT IS BASICALLY A NON NEOPLASTIC DISORDER OF WBC'S**

**MICROSCOPICALLY THERE ARE A LARGE NUMBER OF ATYPICAL LYMPHOCYTES**

**LYMPHOCYTES ARE CHARACTERISED BY ABUNDANT CYTOPLASM CONTAINING MULTIPLE CLEAR VACUOLATIONS AND AN OVAL INDENTED OR FOLDED NUCLEUS**

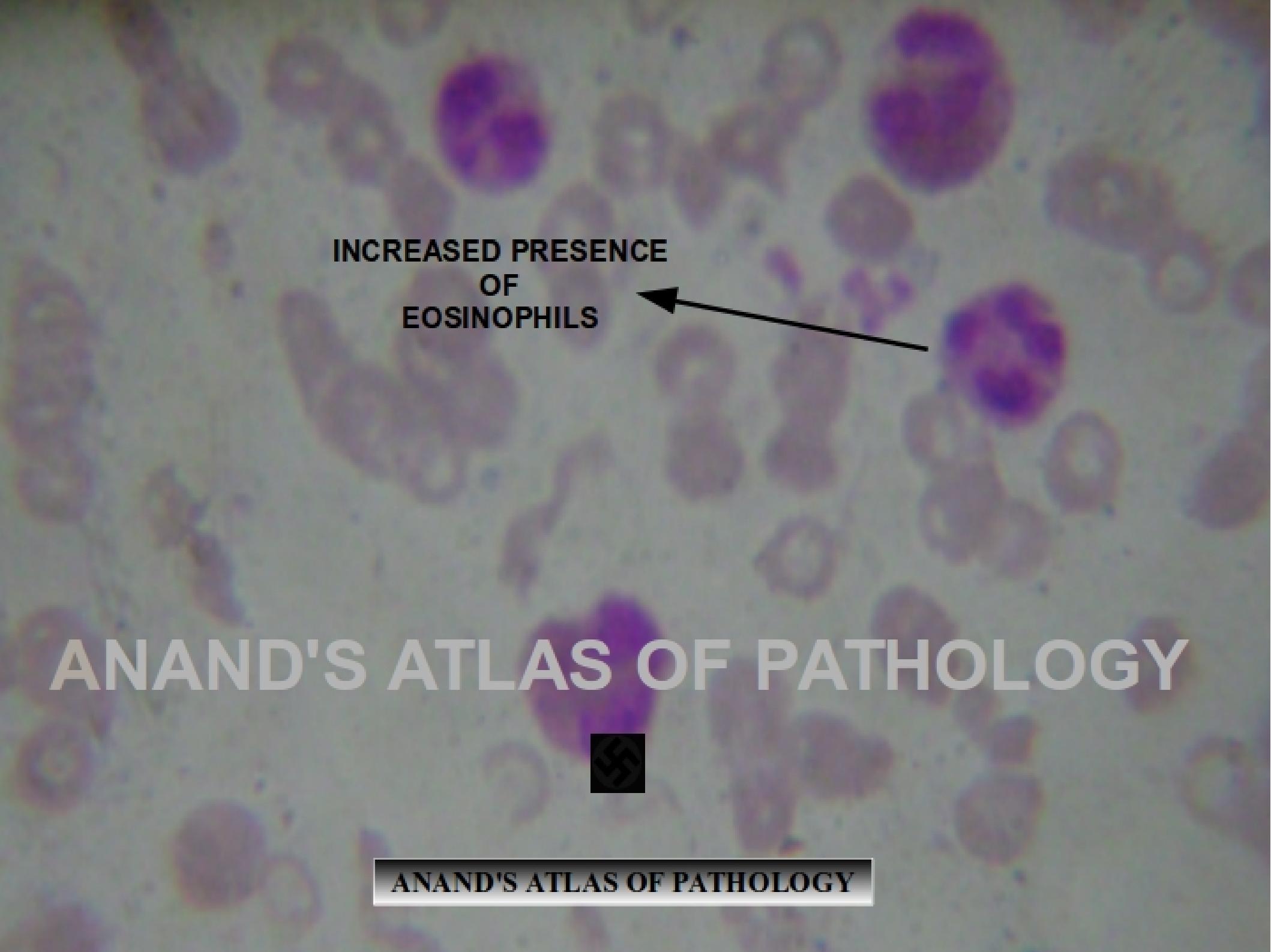
# **EOSINOPHILIA**

**OCCURS IN YOUNG INDIVIDUALS**

**PATIENTS PRESENT WITH FEVER AND  
ASSOCIATED RIGORS**

**THERE IS UNILATERAL  
PITTING OEDEMA IN  
THE LOWER LIMB**

**PERIPHERAL BLOOD SMEAR  
IS DONE**



INCREASED PRESENCE  
OF  
EOSINOPHILS

A black arrow points from the text "INCREASED PRESENCE OF EOSINOPHILS" to a cluster of purple-stained cells in the center-right of the image, which are identified as eosinophils.

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# **EOSINOPHILIA**

**IT IS AN INCREASED COUNT OF EOSINOPHILS IN BLOOD DUE TO PARASITIC INFECTIONS AND ALLERGIC RESPONSES**

**THEY MIGRATE INTO TISSUES DISEASED BY PARASITES**

**THE EOSINOPHILS MIGRATE TOWARDS INFECTED TISSUE BECAUSE OF EOSINOPHIL CHEMOTACTIC FACTOR SECRETED BY MAST CELLS AND BASOPHILS**

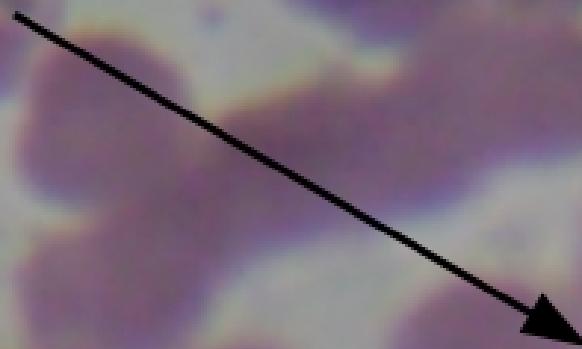
**EOSINOPHILS ALSO DETOXIFY INFLAMMATION INDUCING SUBSTANCES SECRETED BY THE MAST CELLS AND BASOPHILS**

# **ACUTE MYELOID LEUKEMIA**

**AFFECTS YOUNG INDIVIDUALS**

**PRESENTS WITH HISTORY OF  
FEVER DURATION OF  
THREE MONTHS AND ABOVE**

**THERE IS PRESENCE OF SEVERE  
ANEMIA  
PERIPHERAL BLOOD SMEAR  
IS DONE**



AUER ROD

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# **ACUTE MYELOID LEUKEMIA**

**MYELOBLASTS CAN BE DIFFERENTIATED FROM LYMPHOBLASTS BY GIEMSA STAIN**

**BLAST CELLS HAVE DELICATE NUCLEAR CHROMATIN**

**THREE TO FIVE NUCLEOLI ARE SEEN  
FINE AZUROPHILIC GRANULES IN CYTOPLASM**

**DISTINCTIVE RED STAINING ROD LIKE  
STRUCTURES CALLED AS AUER RODS ARE  
PRESENT**

**AUER RODS ARE FOUND ONLY IN NEOPLASTIC  
MYELOBLASTS**

# **ACUTE LYMPHOCYTIC LEUKEMIA**

**SEEN IN ADOLESCENTS**

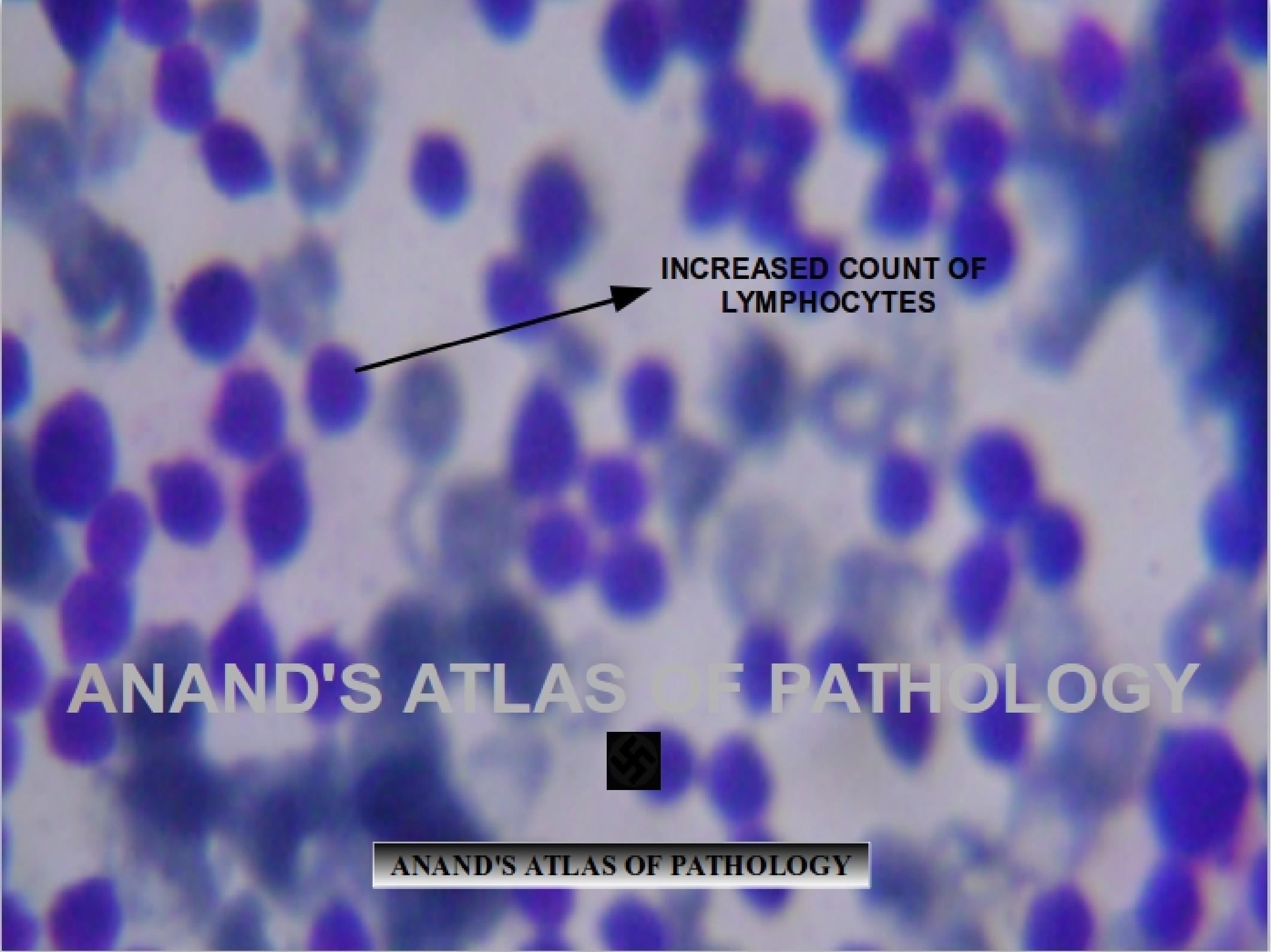
**PRESENTS WITH GENERALISED  
LYMPHADENOPATHY**

**SPLENOEGALY**

**HEPATOMEGLY**

**LOSS OF WEIGHT**

**PERIPHERAL BLOOD SMEAR IS DONE**



INCREASED COUNT OF  
LYMPHOCYTES

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# **ACUTE LYMPHOCYTIC LEUKEMIA**

**LYMPHOCYTIC LEUKEMIAS ARE CAUSED BY  
INCREASED PRODUCTION OF LYMPHOID  
CELLS**

**THE NUCLEI ARE COARSE AND HAVE  
CLUMPED CHROMATIN  
ONLY ONE OR TWO NUCLEOLI WILL BE  
PRESENT**

**CYTOPLASM CONTAINS LARGE AGGREGATES  
OF PAS POSITIVE MATERIAL  
TO DIFFERENTIATE FROM AML -  
MYELOBLASTS ARE PEROXIDASE POSITIVE**

# **CHRONIC MYELOID LEUKEMIA**

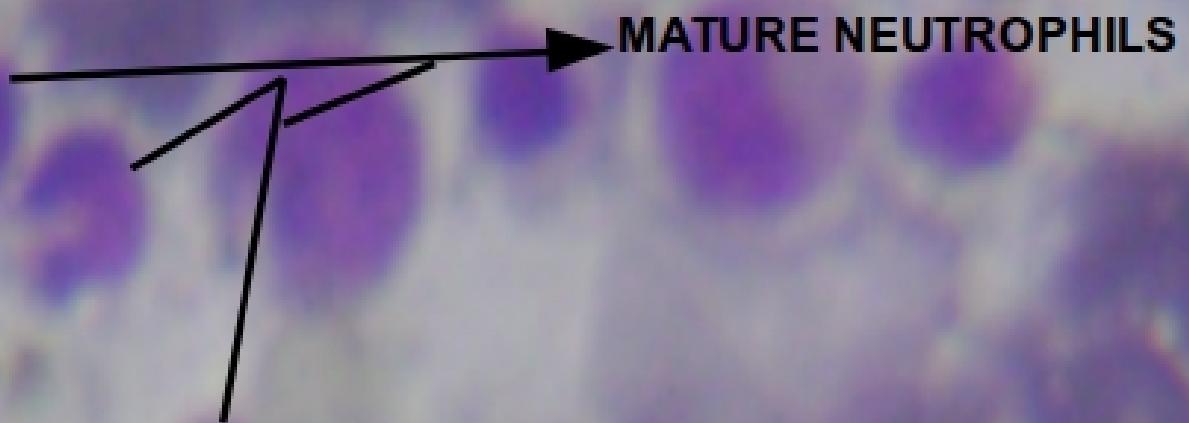
**USUALLY OCCURS IN THE  
5TH DECADE**

**PATIENT PRESENTS WITH FEVER AND  
MODERATE WEIGHT LOSS**

**MASSIVE SPLENOmegaly**

**DRAGGING PAIN IN THE LEFT SIDE  
OF ABDOMEN**

**PERIPHERAL BLOOD SMEAR IS DONE**



# ANAND'S ATLAS OF PATHOLOGY



ANAND'S ATLAS OF PATHOLOGY

# **CHRONIC MYELOID LEUKEMIA**

**PERIPHERAL SMEAR WILL SHOW A LARGE NUMBER OF MATURE NEUTROPHILS SOME METAMYELOCYTES AND MYELOCYTES INCREASED EOSINOPHILS, BASOPHILS AND NUCLEATED RED CELLS WILL BE SEEN THERE WILL A DRAMATIC INCREASE IN THE NUMBER OF MATURE CIRCULATING MYELOBLASTS HISTOLOGICALLY THE PICTURE IS THAT OF NORMOCYTIC NORMOCHROMIC ANAEMIA**

# **CHRONIC LYMPHOCYTIC LEUKEMIA**

**OCCURS IN THE 6TH DECADE**

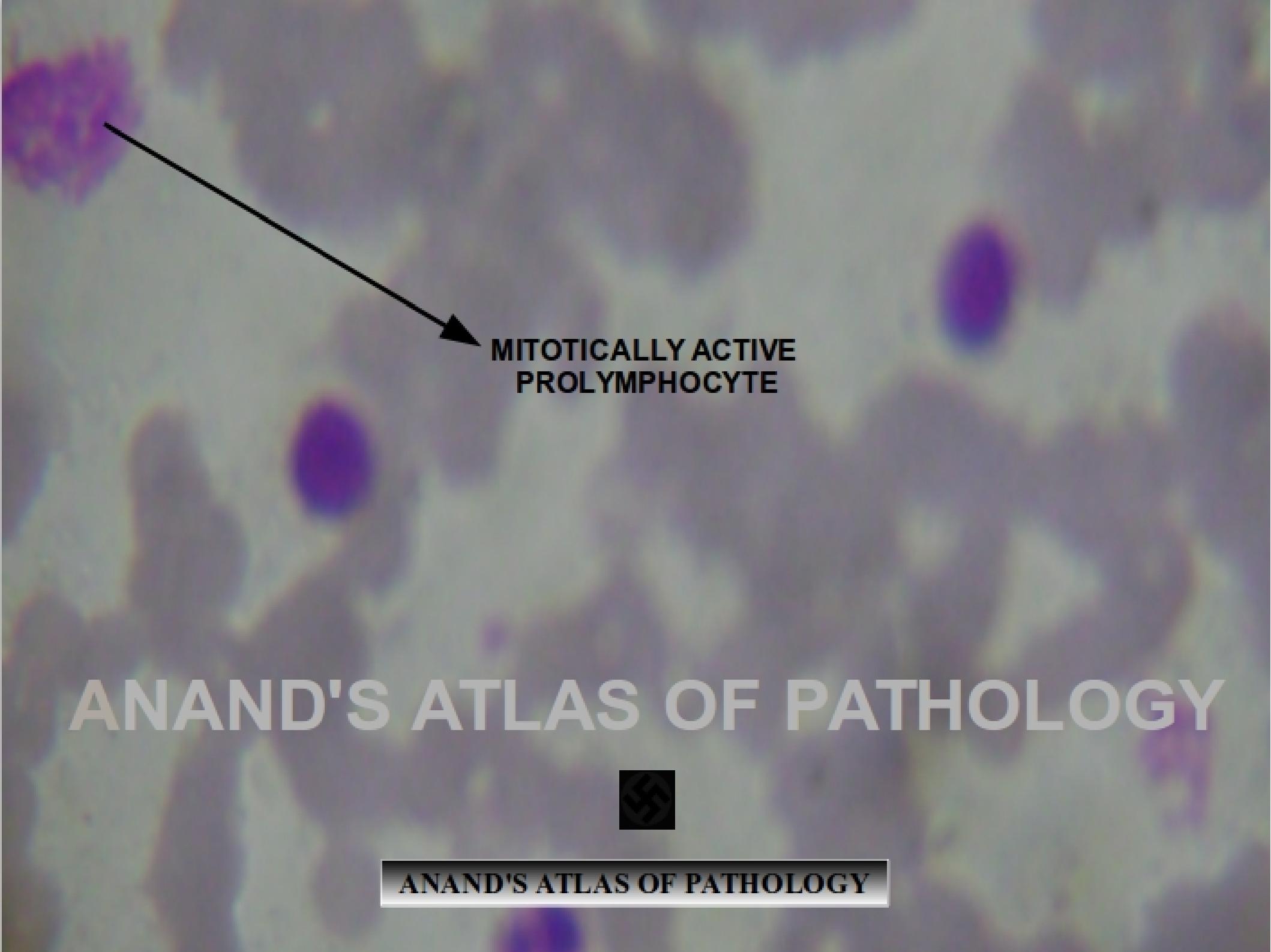
**PATIENT PRESENTS WITH**

**FEVER, FATIGUE AND WEIGHT LOSS**

**GENERALISED LYMPHADENOPATHY IS PRESENT**

**DIFFERENTIAL COUNT SHOWS  
ABNORMALLY HIGH LEUKOCYTOSIS**

**PERIPHERAL BLOOD SMEAR IS DONE**



MITOTICALLY ACTIVE  
PROLYMPHOCYTE

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# **CHRONIC LYMPHOCYTIC LEUKEMIA**

**MILD TO GRADUALLY INCREASING ANAEMIA IS  
SEEN**

**THERE IS A MODERATE AMOUNT OF  
LEUKOCYTOSIS**

**95% OF THE CELLS ARE LYMPHOCYTES  
PREDOMINANTLY OF SMALL CELL TYPE**

**THE FOCI OF MITOTICALLY ACTIVE  
PROLYMPHOCYTES ARE CALLED AS  
PROLIFERATION CENTRES WHICH IS A THE  
DIAGNOSTIC FEATURE OF CHRONIC  
LYMPHOCYTIC LEUKEMIA**

# **MULTIPLE MYELOMA**

**OCCURS IN THE 6TH DECADE**

**PREPONDERANT IN MALES**

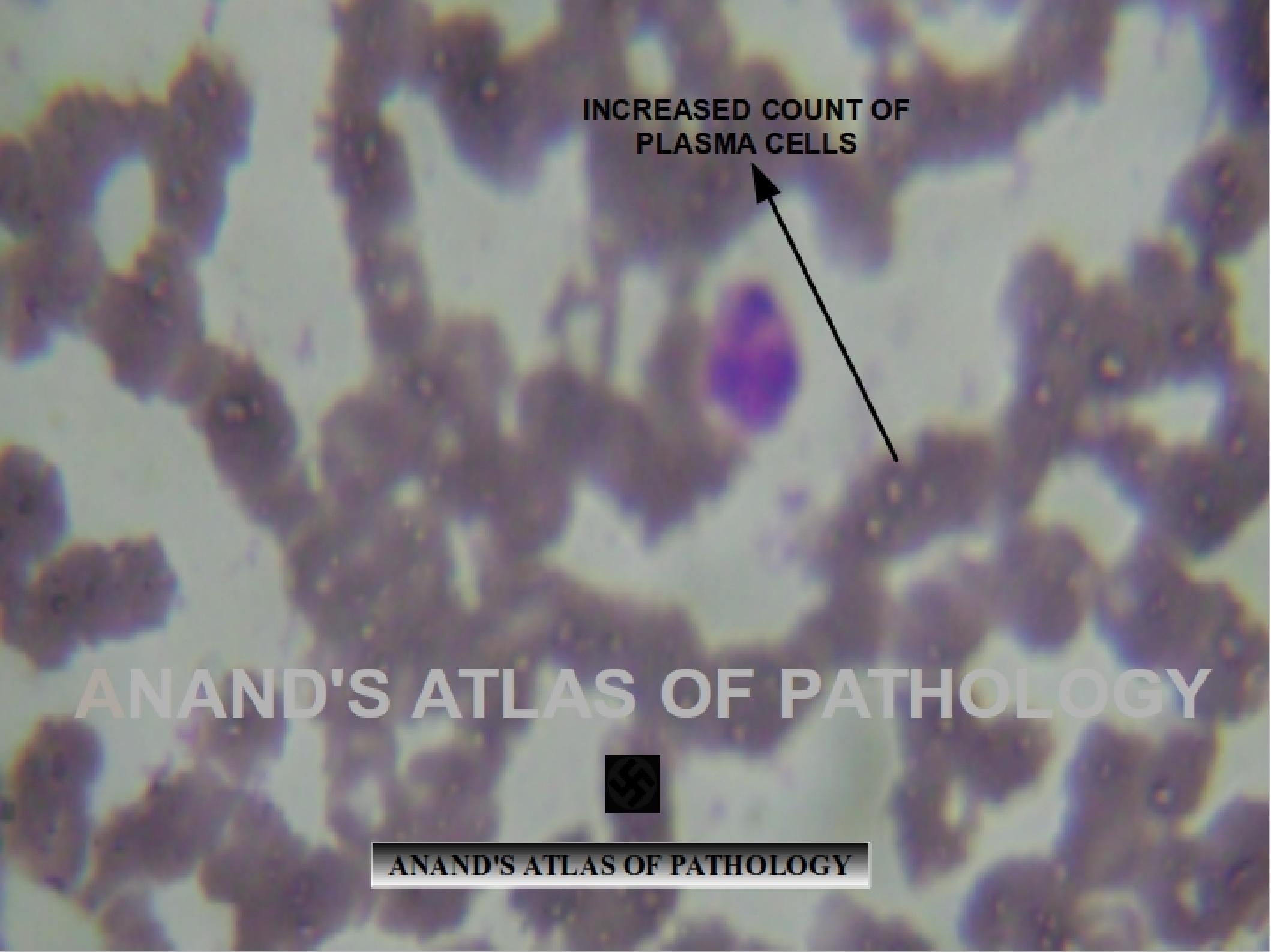
**PATIENTS PRESENT WITH LOW BACK ACHE**

**ABNORMALLY ELEVATED ESR COUNT IS SEEN**

**PROTEINURIA IS PRESENT**

**XRAY OF SKULL REVEALS  
PUNCHED OUT LESIONS**

**PERIPHERAL SMEAR IS DONE**

A light micrograph of tissue sections stained with hematoxylin. The tissue consists of several large, dark purple-stained nuclei arranged in a somewhat organized, branching pattern. A single cell, located in the center-right of the field, has a very large, pale blue-purple nucleus with a prominent, dark purple nucleolus. A thick black arrow points from the text "INCREASED COUNT OF PLASMA CELLS" to this cell.

INCREASED COUNT OF  
PLASMA CELLS

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# **MULTIPLE MYELOMA**

**MULTIPLE MYELOMA CAUSES DESTRUCTIVE  
BONE LESIONS**

**MICROSCOPICALLY THERE IS AN INCREASE OF  
PLASMA CELLS**

**THE NEOPLASTIC PLASMA CELLS RESEMBLE  
NORMAL MATURE PLASMA CELLS**

**THESE CELLS SHOW ABNORMAL FEATURES  
SUCH AS PROMINENT NUCLEOLI, ABNORMAL  
CYTOPLASMIC INCLUSIONS WHICH CONTAIN  
IMMUNOGLOBULIN**

# **SECTION - 4**

## **HISTOPATHOLOGY GROSS SPECIMENS**

# **LIST OF GROSS SPECIMENS**

**ACUTE APPENDICITIS**

**MUCINOUS CYSTADENOMA OF  
OVARY**

**DERMOID CYST**

**LEIOMYOMA**

**RENAL CELL CARCINOMA**

**OSTEOSARCOMA**

# **LIST OF GROSS SPECIMENS**

**OSTEOCLASTOMA**

**TUBERCULOSIS OF LUNG**

**INTESTINAL POLYPS**

**CIRRHOSIS OF LIVER**

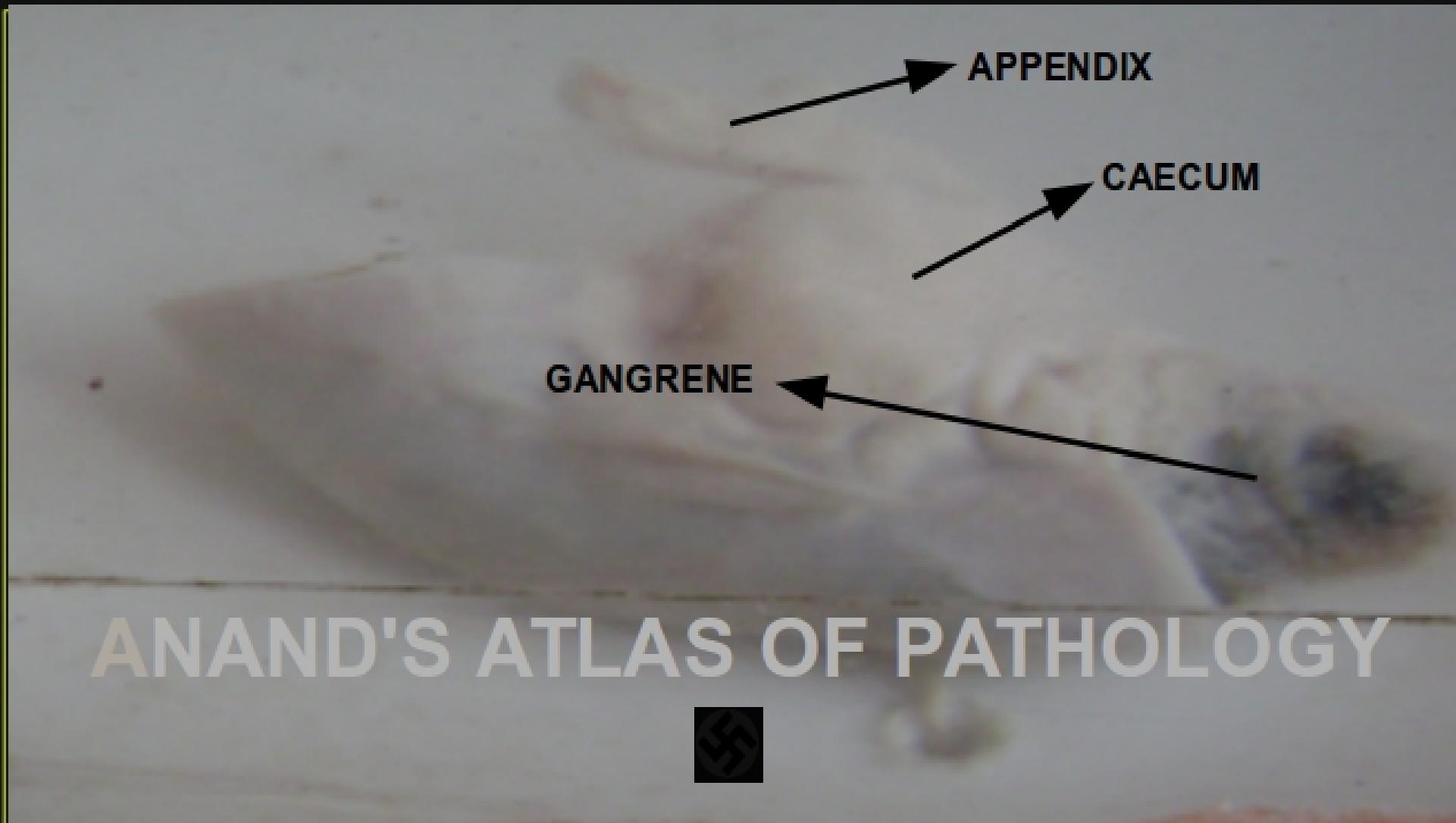
**SECONDARIES OF LIVER**

**CARCINOMA OF BREAST**

# **LIST OF GROSS SPECIMENS**

**MULTINODULAR GOITRE**  
**SQUAMOUS CELL CARCINOMA**  
**OF FOOT**  
**CARCINOMA OF STOMACH**  
**CHOLELITHIASIS**  
**RENAL CALCULII**  
**TRICHOBEZOAR**

# ACUTE APPENDICITIS



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# **ACUTE APPENDICITIS**

**THE ORGAN APPEARS TURGID  
AND DUSKY RED DUE TO  
INFLAMMATION AND  
HAEMORRHAGES IN THE MUCOUS  
MEMBRANE**

**IN ADVANCED CASES IT MIGHT  
APPEAR DARKISH GREEN TO  
BLACK BECAUSE OF  
GANGRENOUS CHANGE**

# MUCINOUS CYSTADENOMA OF OVARY

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CYST CAVITY

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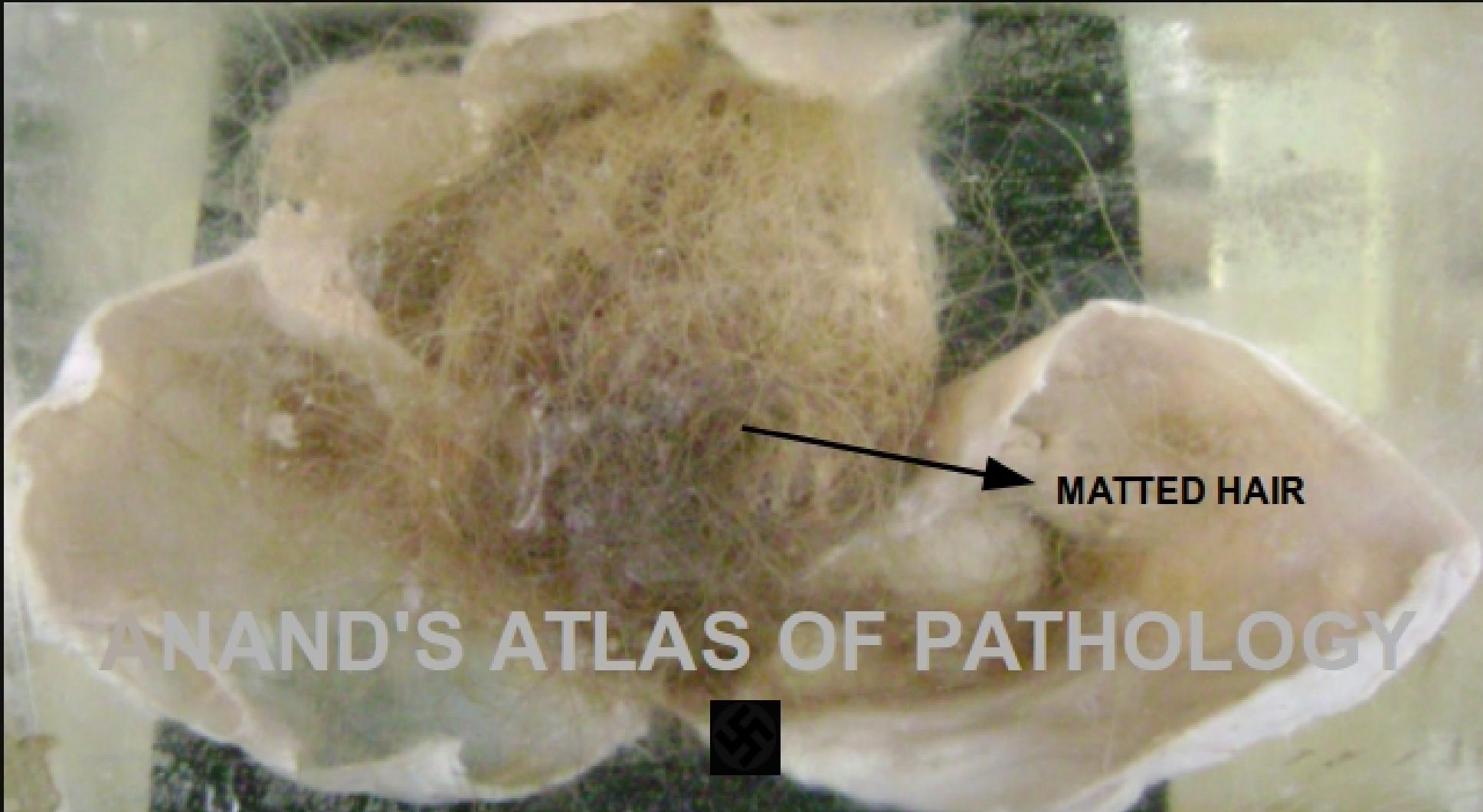
# **MUCINOUS CYSTADENOMA OF OVARY**

**USUALLY A BENIGN TUMOUR  
RARELY UNDERGOES MALIGNANT  
CHANGE  
CYST CAVITIES ARE SEEN  
DELICATE PAPILLARY TUMOUR  
GROWTHS CAN BE SEEN IN THE  
PERIPHERY**

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# DERMOID CYST

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# **DERMOID CYST**

**AFFECTED ORGAN IS OVARY**  
**THESE NEOPLASMS ARE CAUSED BY**  
**ECTODERMAL DIFFERENTIATION OF**  
**TOTIPOTENT GERM CELLS**  
**MATTED HAIR BEARING EPITHELIAL**  
**LINING IS SEEN**  
**SOMETIMES IT CAN HAVE NODULAR**  
**PROJECTIONS FROM WHICH TEETH**  
**CAN PROTRUDE**

# LEIOMYOMA OF UTERUS

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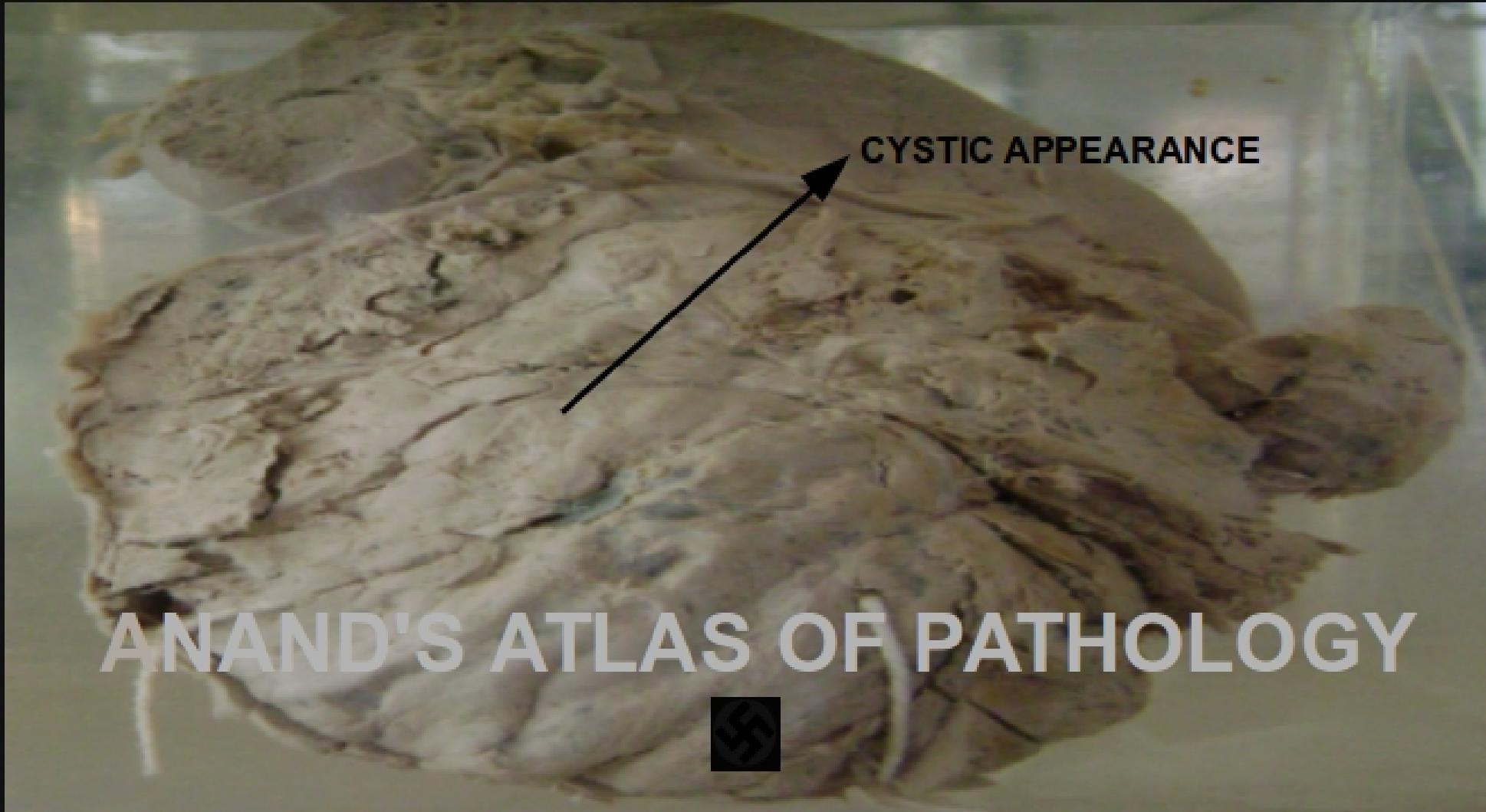
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# **LEIOMYOMA OF UTERUS**

**TUMOUR IS A SHARPLY  
CIRCUMSCRIBED FIRM  
GRAY MASS  
PRESENTS A  
CHARACTERISTIC  
WHORLED CUT SURFACE**

# RENAL CELL CARCINOMA

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# **RENAL CELL CARCINOMA**

**KIDNEY IS USUALLY SOLITARY AND  
LARGE**

**TUMOUR GROWTH IS USUALLY  
CONFINED TO THE CORTEX**

**PROMINENT AREAS OF CYSTIC  
SOFTENING OR HAEMORRHAGE ARE  
SEEN**

**THE MARGINS OF THE TUMOUR ARE  
WELL DEFINED**

# OSTEOSARCOMA

DESTRUCTION OF CORTEX



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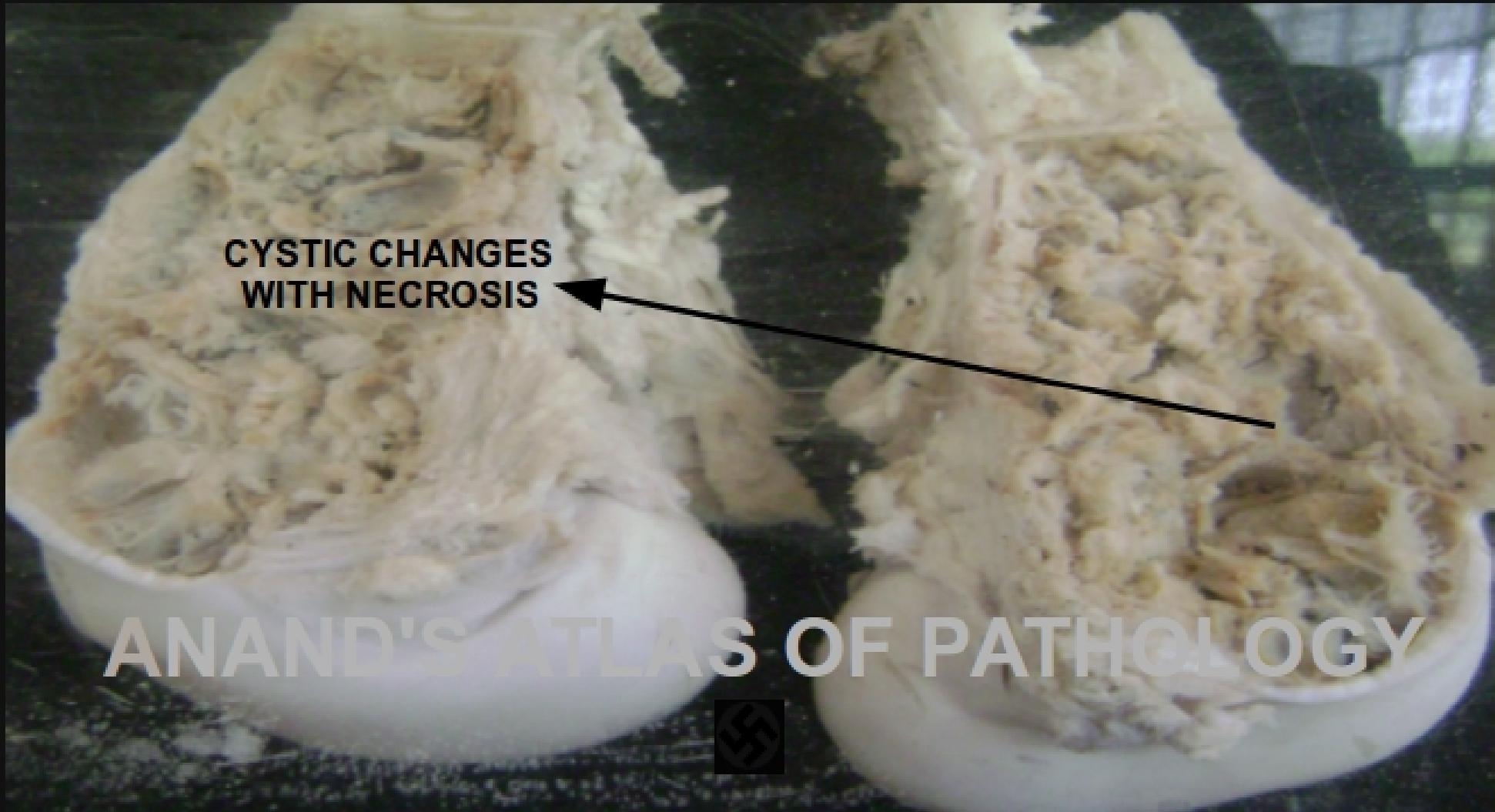
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# **OSTEOSARCOMA**

**IT IS A LARGE ILL DEFINED LESION  
IN THE METAPHYSEAL REGION OF  
THE AFFECTED BONE  
TUMOUR HAS DESTROYED THE  
CORTEX AND INVADED INTO THE  
MARROW CAVITY AND OUTWARD  
INTO ADJACENT SOFT TISSUES**

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**OSTEOCLASTOMA**  
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# **OSTEOCLASTOMA**

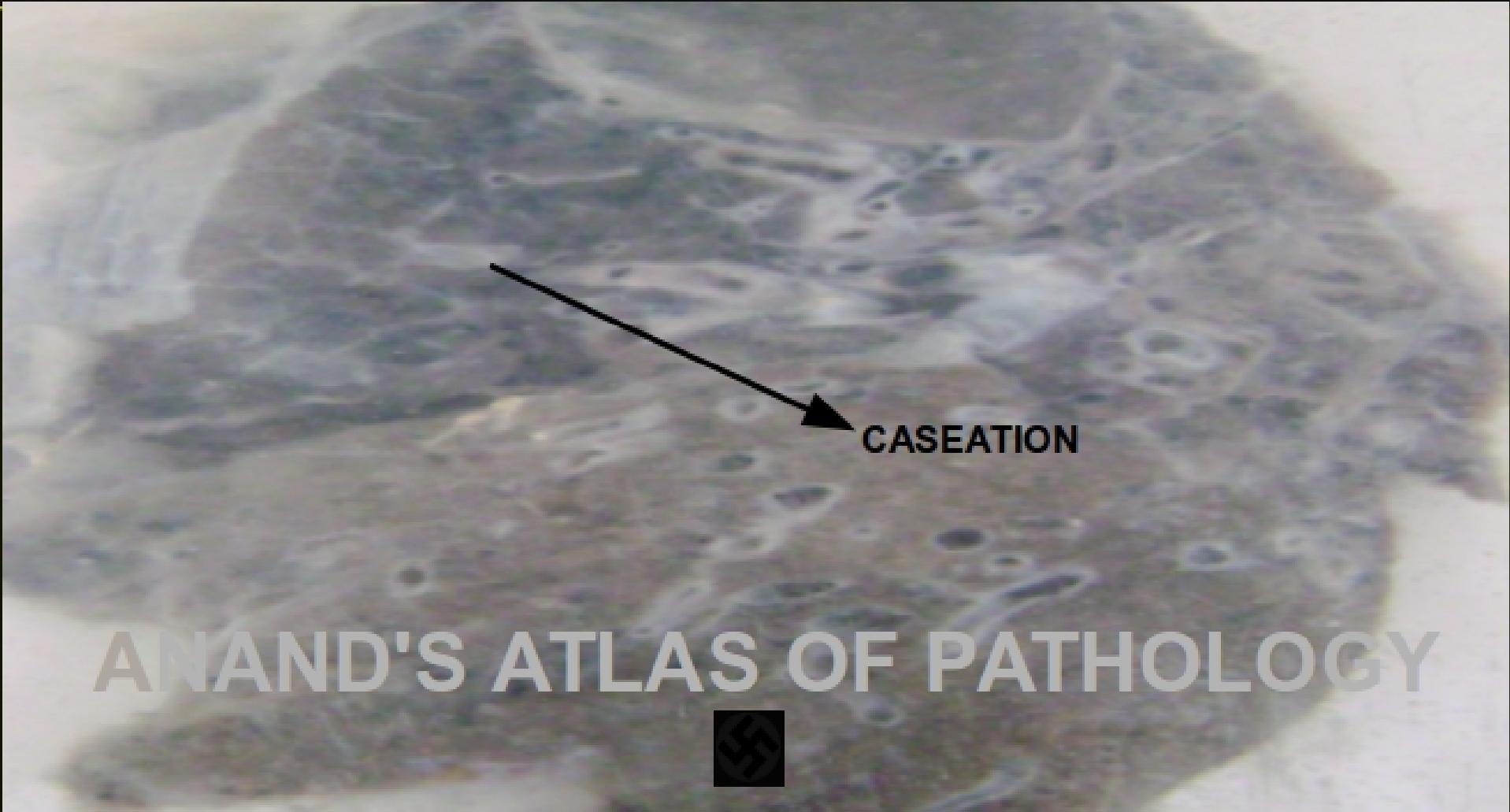
**USUALLY ENDS OF LONG BONE ARE  
AFFECTED**

**TUMOUR IS ALWAYS SOLITARY**

**TUMOUR ERODES INTO THE CORTEX AND  
MAY EXTEND OUTSIDE THROUGH THE  
OVERLYING PERIOSTEUM**

**PRESENTS A DARK BROWN APPEARANCE  
DUE TO ABUNDANT VASCULARITY  
AREAS OF NECROSIS AND CYSTIC CHANGES  
ARE SEEN**

# TUBERCULOSIS OF LUNG



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# **TUBERCULOSIS OF LUNG**

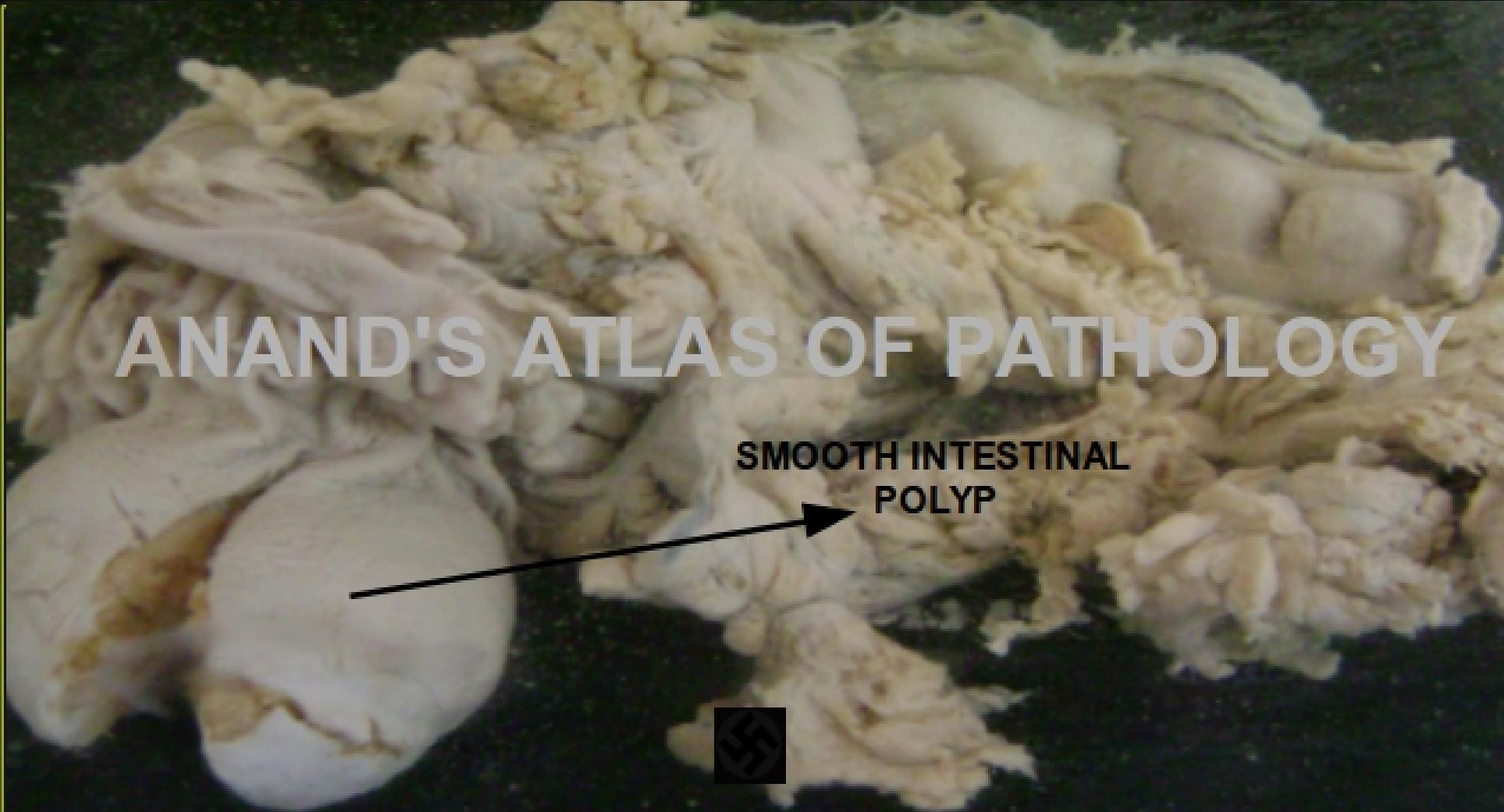
**LUNGS ARE RIDDLED WITH  
GRAY WHITE AREAS OF  
CASEATION**

**MULTIPLE AREAS OF  
SOFTENING AND CAVITATION  
ARE SEEN**

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# INTESTINAL POLYPS

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Major Dr.

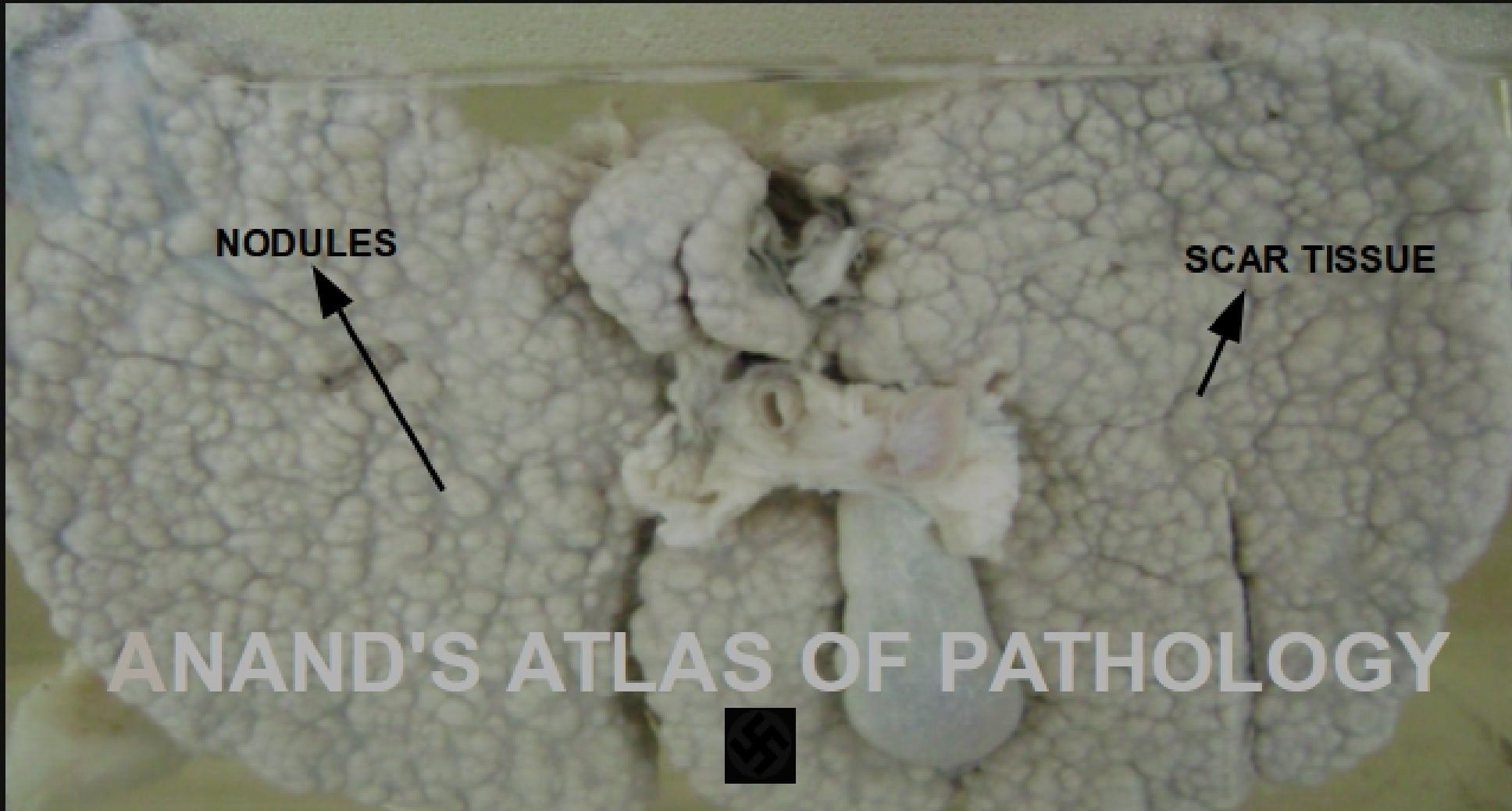
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# **INTESTINAL POLYPS**

**MULTIPLE HEMISPHERICAL SMOOTH PROTRUSIONS ARE SEEN ON THE MUCOSA  
THEY ARE NIPPLE LIKE  
USUALLY AFFECTS THE RECTOSIGMOID JUNCTION**

# CIRRHOSIS OF LIVER



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# **CIRRHOSIS OF LIVER**

**SPECIMEN OF LIVER  
SHOWING IRREGULARLY  
SIZED NODULES  
PUNCTUATING THE SURFACE  
OF THE LIVER  
THE NODULES ARE  
SEPARATED BY SCAR TISSUE**

# SECONDARIES - LIVER

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METASTATIC NODULE



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# **SECONDARIES - LIVER**

**WELL ROUNDED GROWTHS OF VARYING SIZES SEEN ON THE SURFACE OF THE LIVER**  
**POSSIBLE PRIMARY SITES OF MALIGNANCY IS BY HAEMATOGENOUS ROUTE FROM ABDOMINAL ORGANS AS ALL PORTAL BLOOD IS DRAINED INTO THE LIVER**  
**COMMONEST SITES OF METASTATIC SECONDARIES INTO THE LIVER ARE FROM COLON, LUNGS AND BREAST**

# CARCINOMA OF BREAST

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NECROTIC TUMOUR  
TISSUE



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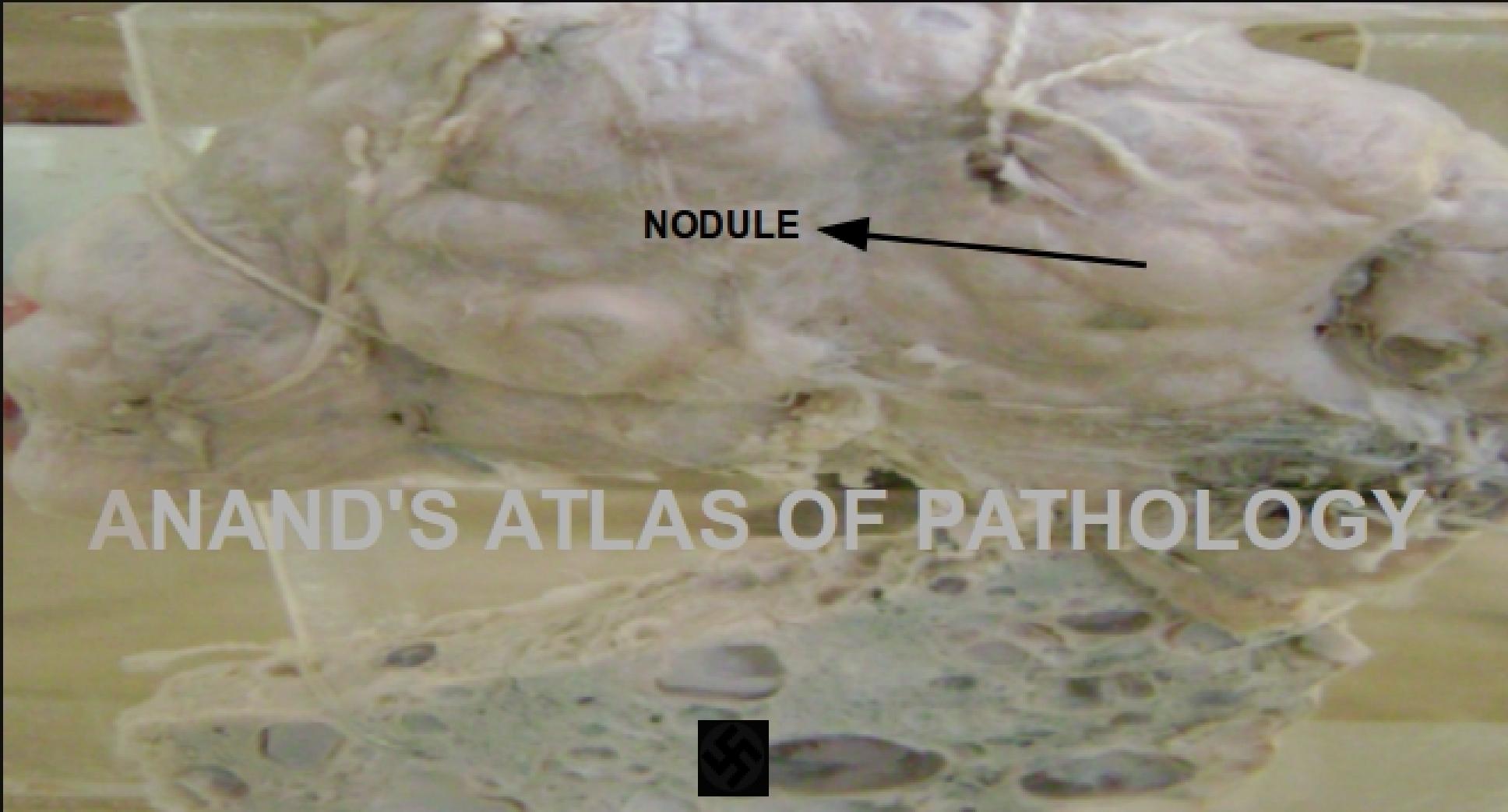
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# **CARCINOMA OF BREAST**

**DUE TO DESMOPLASTIC RESPONSE,  
NORMAL BREAST FAT IS REPLACED  
AND FORMS A HARD PALPABLE MASS  
DIMPLING OF SKIN IS SEEN  
RETRACTION OF NIPPLE IS SEEN  
FIXITY TO CHEST WALL IS SEEN IN  
INVASIVE CARCINOMA**

# MULTINODULAR GOITRE



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# **MULTINODULAR GOITRE**

**THYROID GLAND IS IRREGULARLY ENLARGED**

**MULTIPLE IRREGULARLY PLACED NODULES OF VARYING SIZES AND SHAPE ARE SEEN**

**THE GLAND APPEARS COARSE AND AREAS OF FIBROSIS AND CYSTIC CHANGES ARE SEEN**

# SQUAMOUS CELL CARCINOMA OF FOOT

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CAULIFLOWER LIKE  
GROWTH



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# **SQUAMOUS CELL CARCINOMA OF FOOT**

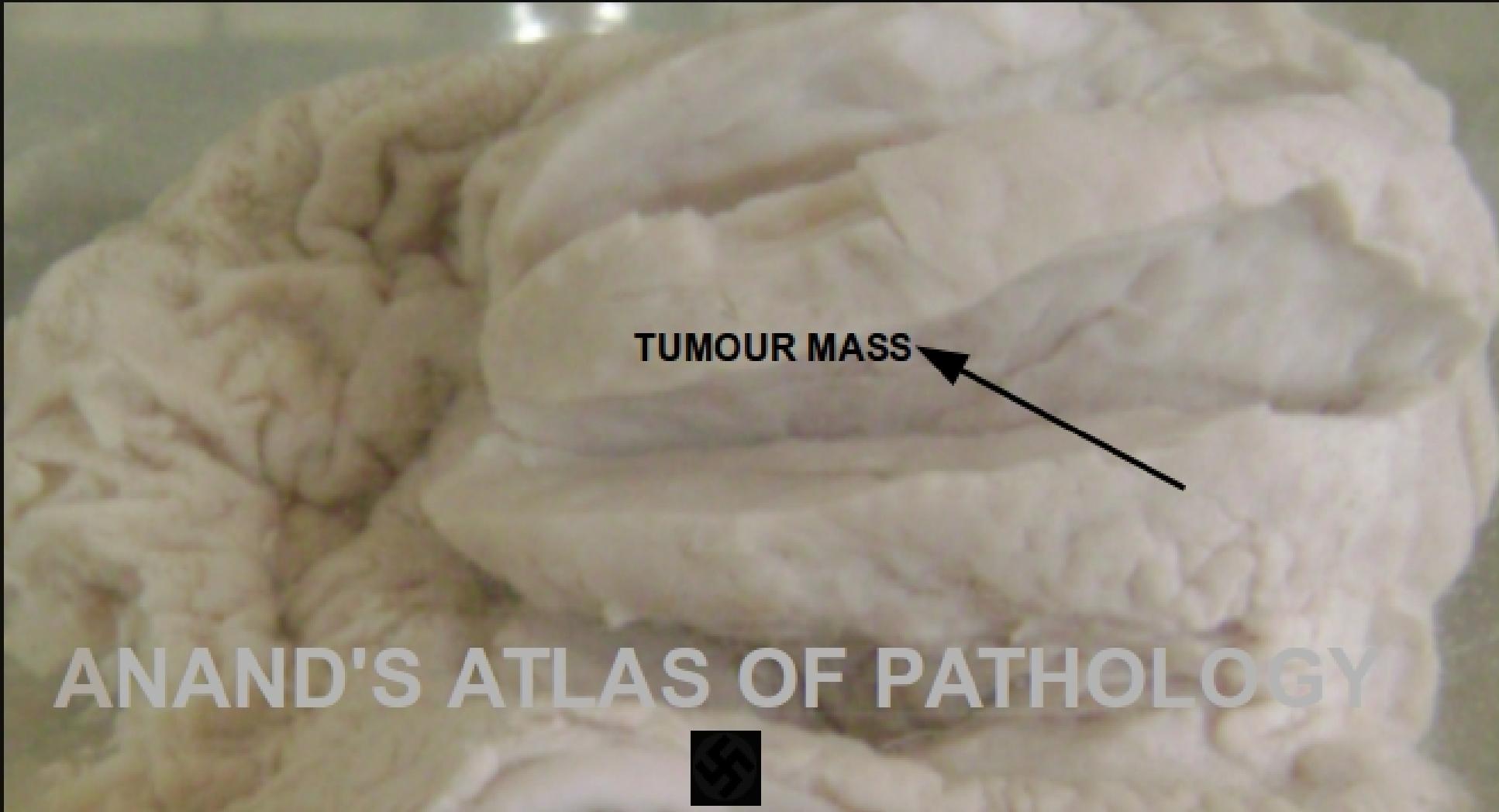
**ARISES COMMONLY FROM SUNLIGHT  
EXPOSED SURFACES**

**FOOT IS A COMMON SITE**

**OLD BURNS SCAR IS A PREDISPOSING  
FACTOR**

**LESIONS ARE NODULAR, THE GROWTH  
IS LIKE THAT OF A CAULIFLOWER**

# CARCINOMA OF STOMACH



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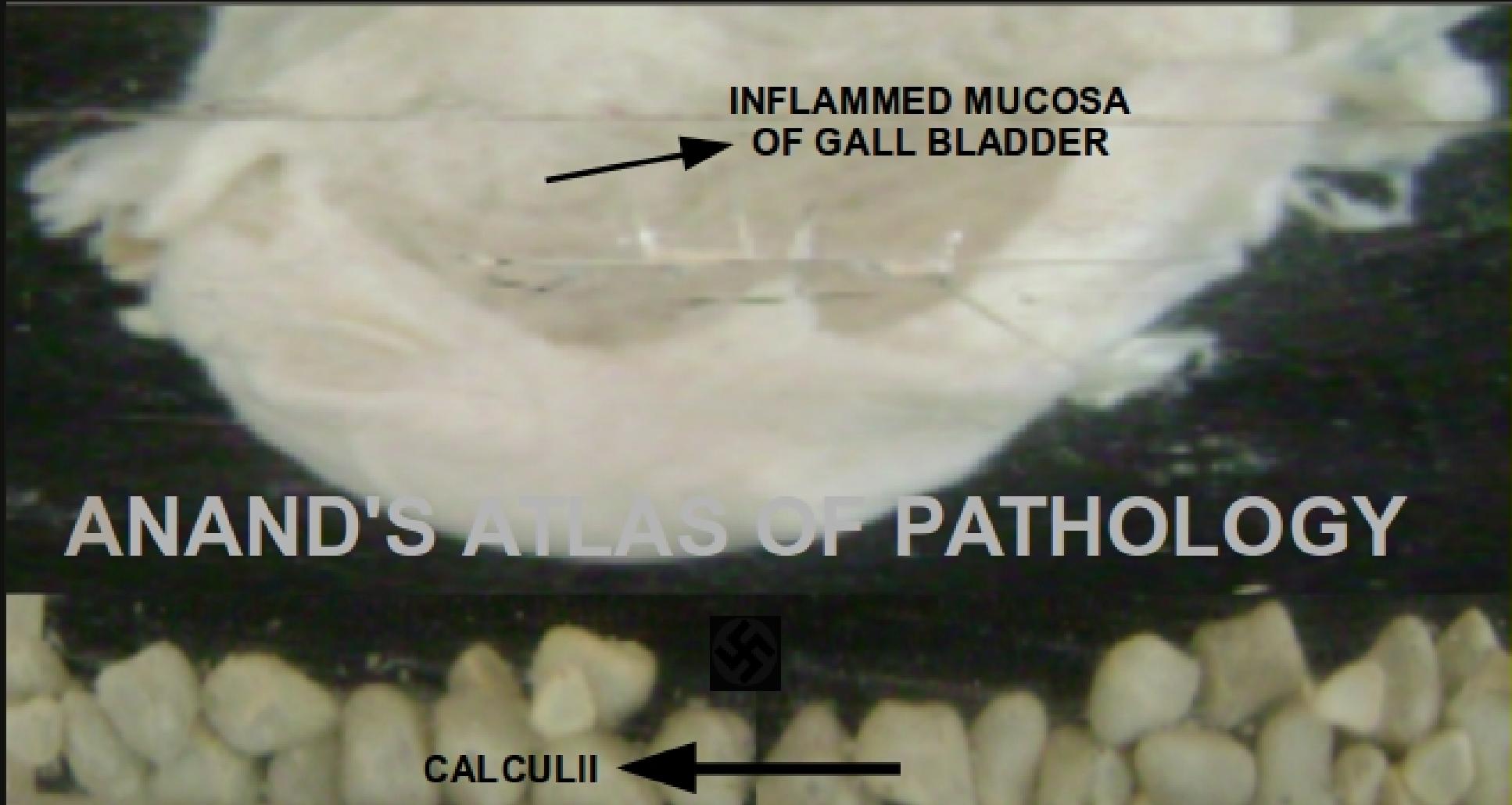
# **CARCINOMA OF STOMACH**

**PYLORUS AND ANTRUM ARE THE COMMONLY AFFECTED SITES  
THERE IS PROTRUSION OF TUMOUR MASS INTO THE LUMEN  
IN EXCAVATED TYPE, A SHALLOW OR DEEPLY EROSION CRATER IS SEEN.**

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# CHOLELITHIASIS

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CALCULII

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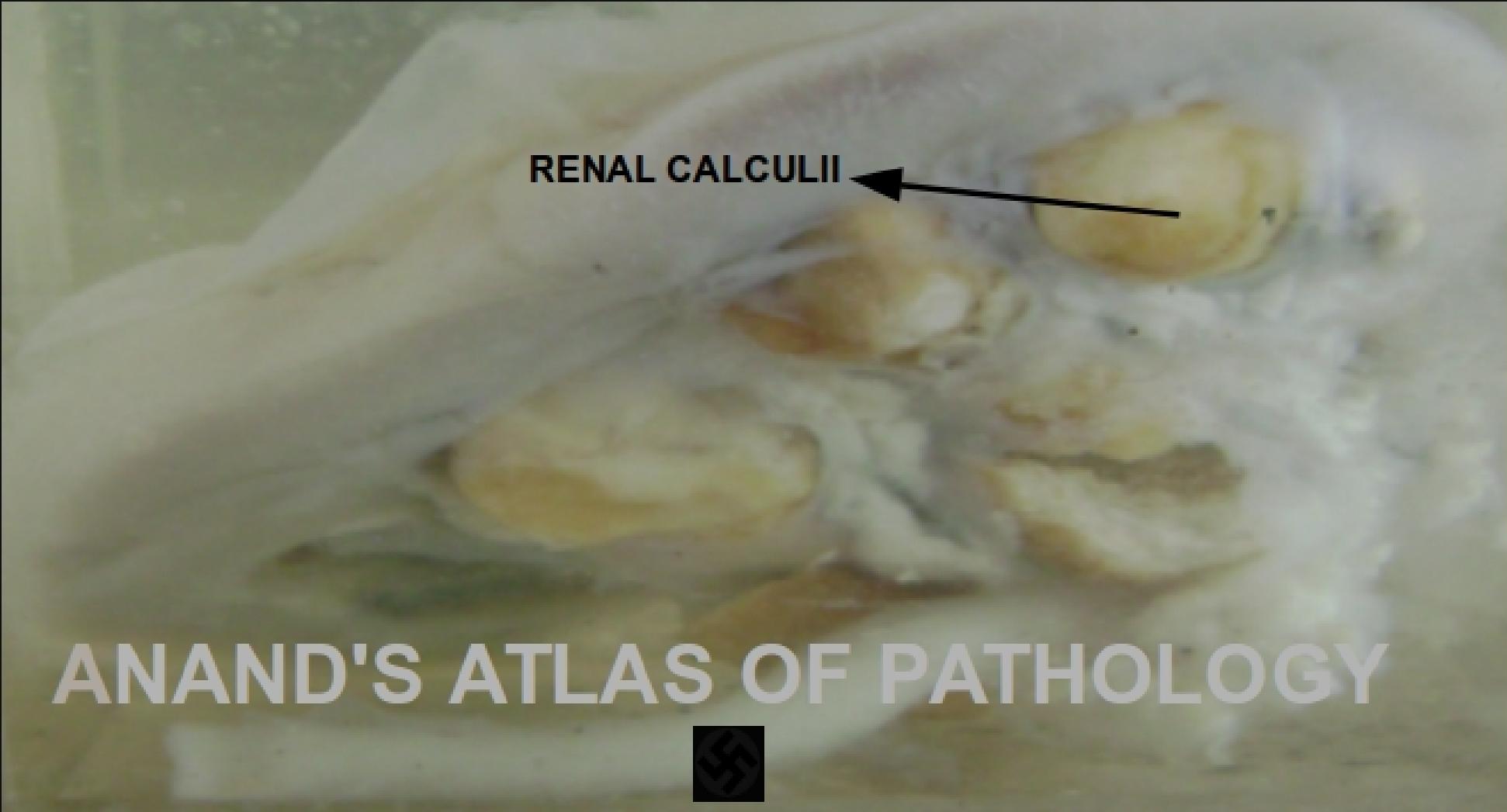
# **CHOLELITHIASIS**

**THE GALL BLADDER MUCOSA IS IRREGULAR  
DUE TO CHRONIC INFLAMMATION.  
MECHANICAL MANIPULATION OF GALL  
BLADDER CAUSES FRAGMENTATION OF GALL  
STONES**

**CALCULI ARE USUALLY CHOLESTEROL  
STONES**

**CHOLESTEROL STONES ARE USUALLY  
YELLOW, MULTIPLE AND HAVE FACETED  
SURFACES**

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**RENAL CALCULII**  
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# **RENAL CALCULII**

**ALSO CALLED AS UROLITHIASIS**

**RENAL CALCULII ARE USUALLY UNILATERAL**

**COMMONEST SITES OF CALCULII ARE**

**RENAL PELVIS AND CALYCES**

**MANY STONES ARE FOUND**

**STAGHORN CALCULII IS DUE TO**

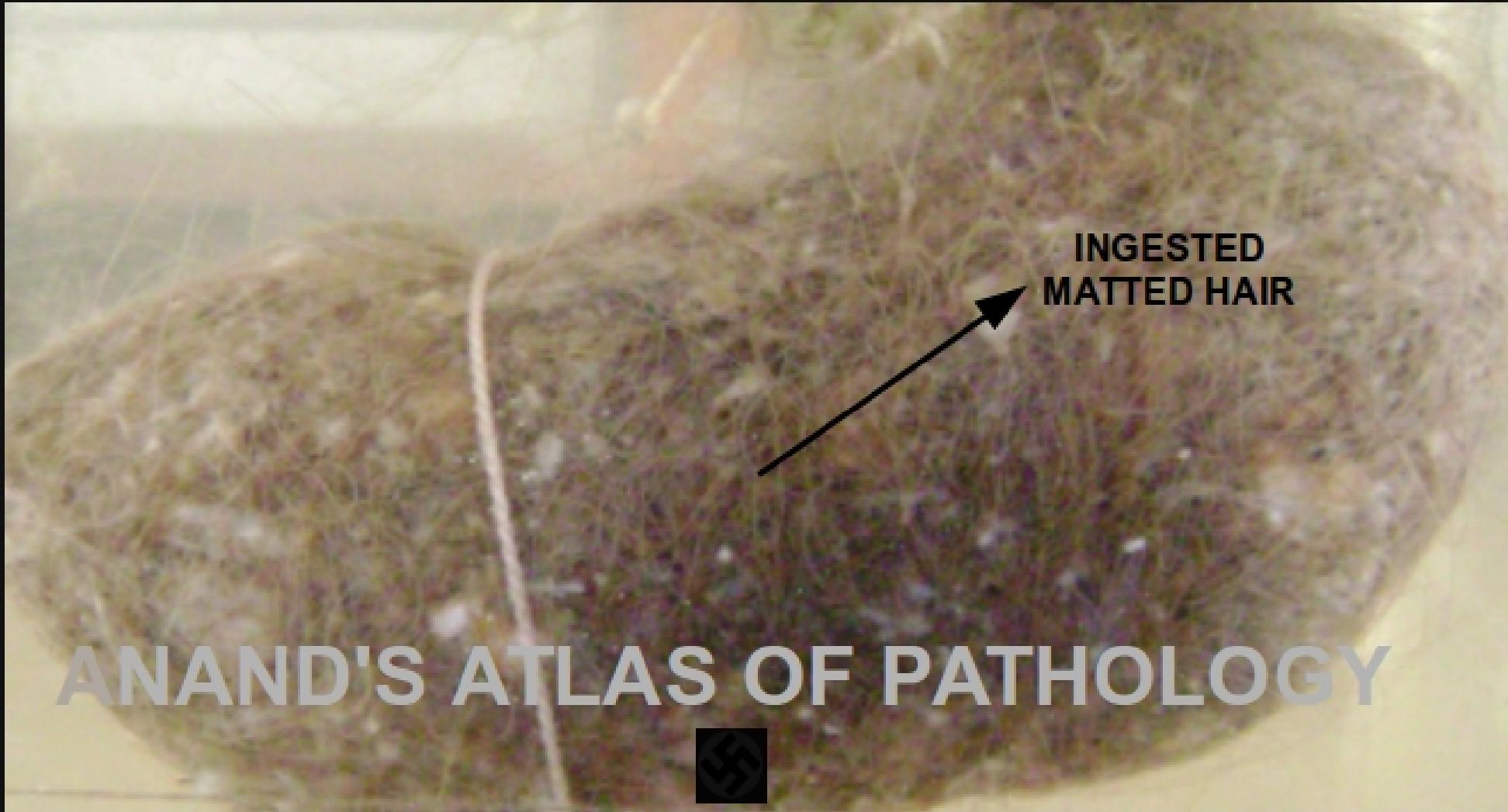
**PROGRESSIVE ACCUMULATION OF SALTS**

**MASSIVE STONES ARE USUALLY COMPOSED  
OF MAGNESIUM AMMONIUM PHOSPHATE**

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# TRICHOBEZOAR

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# **TRICHOBEZOAR**

**TRICHOBEZOAR OCCURS ALMOST EXCLUSIVELY IN FEMALES.**

**80% OF THE PATIENTS SUFFER FROM PSYCHIATRIC DISORDERS**

**TRICHOBEZOAR RESULTS FROM INGESTION OF HAIR**

**PATHOLOGICALLY IT GIVES RISE TO GASTRODUODENAL ULCERATION**



THANK YOU

# Anand's Atlas of Pathology

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